CALIFORNIA STATE BOARD OF HEALTH
MONTHLY BULLETIN

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THERE is a budget which we pay with frightful regularity; it is that of unnecessary disease and premature death. The first and essential points in the fight against these factors is the early recognition of communicable diseases, so we may properly institute preventative measures.

—*Irving Fisher.*

¶ MALARIA CONTROL AT ANDERSON
SUBSTITUTES FOR POTATOES

¶ MARCH, 1920

California State Board of Health.

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MALARIA CONTROL.

A Report of Demonstration Studies at Anderson, California.

By Stanley B. Freeborn,
Assistant Professor of Entomology, University of California, and
Assistant Consulting Entomologist, California State Board of Health.

For many years the California State Board of Health had hoped to be able to conduct a demonstration of antimalaria work in some of the malarial parts of the state. This opportunity was afforded during the summer of 1919, when a condition closely simulating an epidemic of malaria occurred in southern Shasta County, necessitating state aid in its control. Governor Stephens allowed the use of $10,000 from the emergency fund, and the town of Anderson, which seemed to be hardest hit, was chosen as the demonstration center.

Location of the Work.

Anderson, the site selected for the demonstration, is an unincorporated town of about one thousand inhabitants lying at the very northern extremity of the Sacramento Valley in the heart of a district known as the Anderson Valley. The town was founded in 1872 by the location of a station on the Southern Pacific of that name and the establishment of a general store by Wright and Bedford. The interests of the town are almost exclusively agricultural, as the surrounding district is extremely favorable to the production of a variety of farm products, particularly fruits. The inhabitants are therefore chiefly farmers, farm laborers, and merchants and, for this period, present a strikingly pure population of native born Americans.

Climate and Topography.

The conditions at Anderson are in general an accentuation of the general valley conditions of California, extending farther in both maximum and minimum temperature means. The summer months are excessively warm, while the winters are more or less rigorous and generally accompanied by some snow fall. The table below will give an idea of the conditions and will also bring out some other points that are of interest. In the first place, the mosquito breeding period which occurs from April to November does not depend on the rainfall as it does under most Eastern conditions, a fact that emphasizes the inexcusability of mosquito and malaria toleration if only a relatively small amount of labor is expended on the more or less permanent breeding places. Notwithstanding this general fact, the table shows an unprecedented rainfall for September, probably the second heaviest breeding month of the year, for which reason the table for 1918 was recorded rather than that of 1919, as it serves as a clue to the reason why 1919 was such a banner year for mosquitoes. Larvæ breeding in the September rain pools may have furnished the large overwintering supply of adults that furnished the egg layers for the enormous 1919 crop.

TABLE I.

Climatological Data for Anderson for the Year Preceding the Work (1918).

Month	Mean maximum temp.	Mean minimum temp.	Relative humidity	Total precip. in inches	Sunshine, % of possible
January	55.3	40.2	64	[1]0.67	56
February	56.2	40.3	66	3.23	55
March	62.8	44.2	66	4.28	57
April	72.5	48.1	46	.68	87
May	78.4	52.0	43	.05	86
June	98.5	65.6	28	.09	92
July	94.5	64.1	32	.00	98
August	94.8	64.7	32	.12	90
September	83.3	59.6	64	[2]7.46	67
October	76.8	56.3	57	.51	76
November	60.3	41.6	70	4.70	51
December	53.5	34.9	61	1.78	61

[1] Departure of —3.27 from normal.
[2] Departure of +6.66 from normal.

The town itself, situated at an altitude of almost 425 feet above sea level on the floor of the Sacramento Valley, extends easterly to the abrupt slope of a range of hills. Westerly from the town the slope is gentle and the terrain practically level to the river about a mile away, the banks of which are at an altitude of approximately 410 feet, although the river flows during the summer months many feet below this level, having formed rather steep precipitous banks. The possibilities for drainage were excellent through the channelization of the existing natural sloughs that had become clogged by vegetative growth due to the introduction of irrigation.

Preliminary Work.

During June, 1919, a visit was made to the town to ascertain just how much malaria was present in order to check up the seemingly extravagant hearsay evidence regarding the prevalence of the disease that had been sifting to the administrative offices. By installing temporary laboratories on street corners, in stores, private homes and in the hall where a Chautauqua course was being given it was possible to obtain one hundred and nineteen blood smears. The result of the examinations of these smears is recorded below, together with the histories obtained.

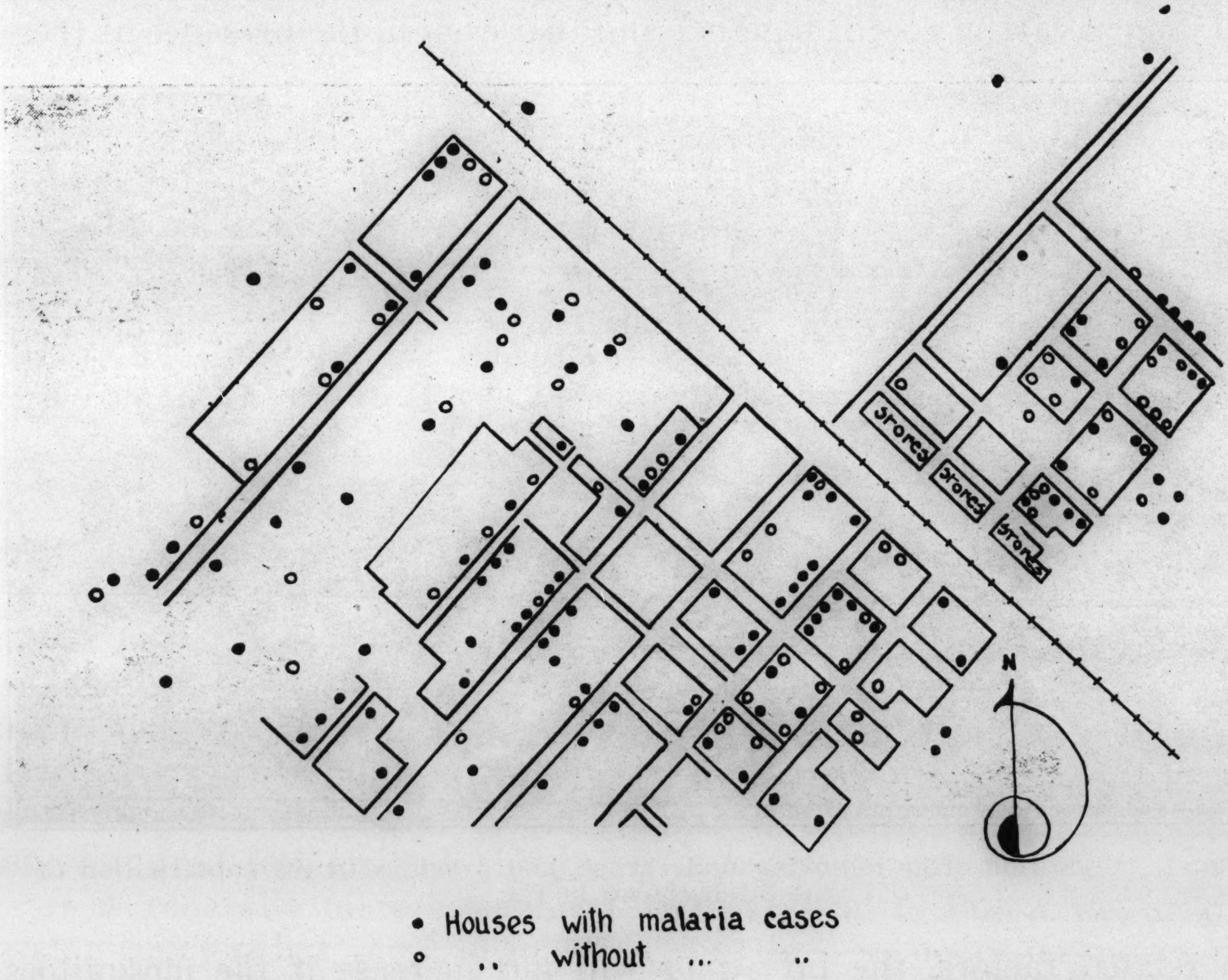
TABLE II.

Preliminary Malarial Index, June, 1919.

	Blood smears			Histories			Number taking quinine
	—	+	% +	—	+	% +	
Total examined	90	29	25.2	33	86	72.2	53
Adults	62	16	20.6	28	50	64.1	40
10-15 years	18	10	35.7	3	25	80.3	10
Under 10 years	10	3	23.0	2	11	84.6	3

The technique of making blood examinations was to obtain a thick smear which was "laked" in acid alcohol and stained in polychromethylene blue and eosin. For the histories the patient's name, age and occupation was recorded with a notation as to whether they were taking quinine, "chill tonic," "malaria cure," etc. The report of having had malaria was so universal that only those having had chills within three months were recorded as positive. It is decidedly conceivable that the smear index would have more nearly approached the history index had there been an opportunity to regulate the administration of quinine previous to the examination, as forty-three of the ninety negatives had been taking quinine up to and including twenty-four hours preceding the examination. Ten of these showing positive smears had also followed this practice but the parasites were still plentiful enough to be detected.

At the same time a survey of the mosquito breeding areas adjacent to the town was made. The local irrigation district began delivering water to this area in 1917 and although certain areas in the district had been subject to spring flooding and summer seepage since the earliest times, the advent of large quantities of irrigation water had augmented these pools and given rise to new ones with the result that breeding was prolific about the town and the surrounding district. *Anopheles occidentalis* the counterpart of *A. quadrimaculatus,* the Eastern malaria carrier, was the predominant mosquito, occurring in numbers that made exposure during the evening almost unendurable.



The general sanitary conditions of the town were extremely poor. Only a few of the homes were adequately screened, many of them relying on torn and worn out cloth mosquito bar. There is no common sewage system, the outdoor privy remaining the reigning mode. Within recent years a town water supply has been installed but almost all homes retain their dug wells which are alternated up and down the streets with the privy vaults which are kept in close connection with the wells by a flowing water table that remains within two or three feet of the surface throughout the year. The town supply, drawn from deep wells located well above the town, probably furnishes a safe water although early in the work it was shown to be heavily contaminated with B. coli from surface water. Although it is somewhat aside from the malaria control question, the effects of general sanitation upon the endemicity of malaria are so little understood that a statement of the bacteriological findings of a series of wells situated throughout the town and used for drinking purposes is included. Out of thirty-three samples taken, only seven or 21.2 per cent showed less than 0.1 B. coli per c. c., the safe maximum for potable purposes. The majority of the samples showed contamination of 1.0 B. coli per c. c. while eight samples, or 24.2 per cent, showed B. coli present at the rate of 10+ per c. c.

Outline of Work.

Recognizing that malaria is endemic only where anopheline mosquitoes and human carriers occur together and that even in the presence of these two related factors, the infections will not increase if the mosquitoes can be prevented from biting human beings, it was determined to base the control measures on these three points. The absolute control of anopheline mosquitoes, or the complete cure of every carrier, or the adequate protection of every person in the community from mosquito bites, would effectually rid the district of malaria, but unfortunately the possibility of accomplishing any of these projects is entirely theoretical and impossible from a practical standpoint. The most successful and speedy control depends on a combination of these factors in which each phase is undertaken with as much zeal and purpose as though it were the sole hope of success. With these ideas in view it was undertaken to (1) Control the breeding of mosquitoes; (2) treat and cure as many patients as possible, and (3) screen the homes.

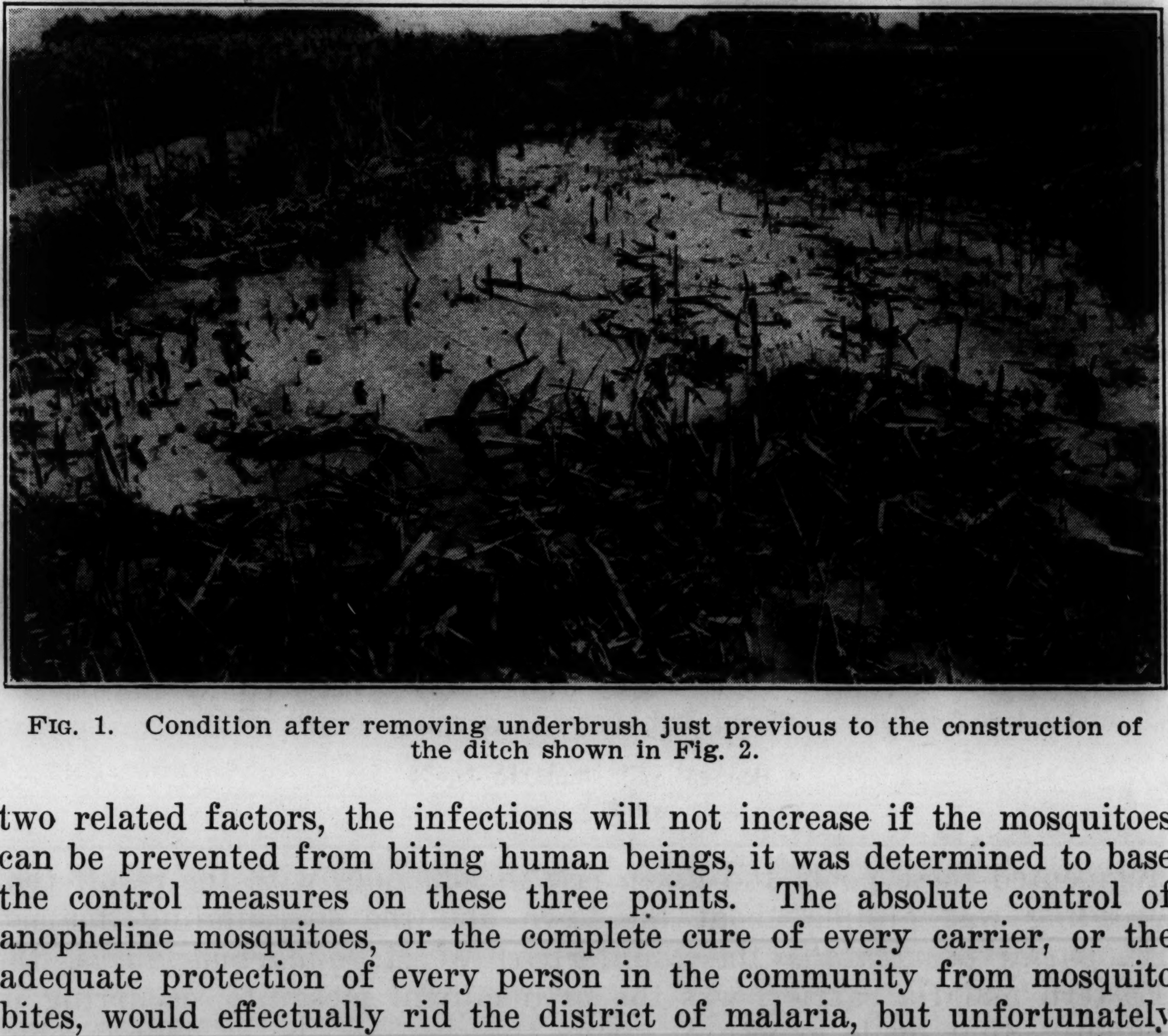


FIG. 1. Condition after removing underbrush just previous to the construction of the ditch shown in Fig. 2.

In certain unique situations, such as temporary labor or military camps located in districts where the control of mosquitoes presents a practically insurmountable project, treatment including prophylaxis, and personal protection become the chief reliance. Although the two factors of malaria control—treament and protection—are of great importance, and should always be incorporated in projects of this kind, particularly where early results are paramount, mosquito control stands preeminently in first place where permanent control and economy over a period of years is the ultimate goal.

At Anderson the problem of mosquito control involved the draining of two types of breeding places, the pools of seepage water from the irrigation system that spotted the entire area under control in practically all the depressions of both natural and artificial character, and secondly, the training of two natural sloughs and their tributaries that meandered through the town overgrown with vegetation and spreading out over their original banks to a distance of from ten to one hundred feet on each side.

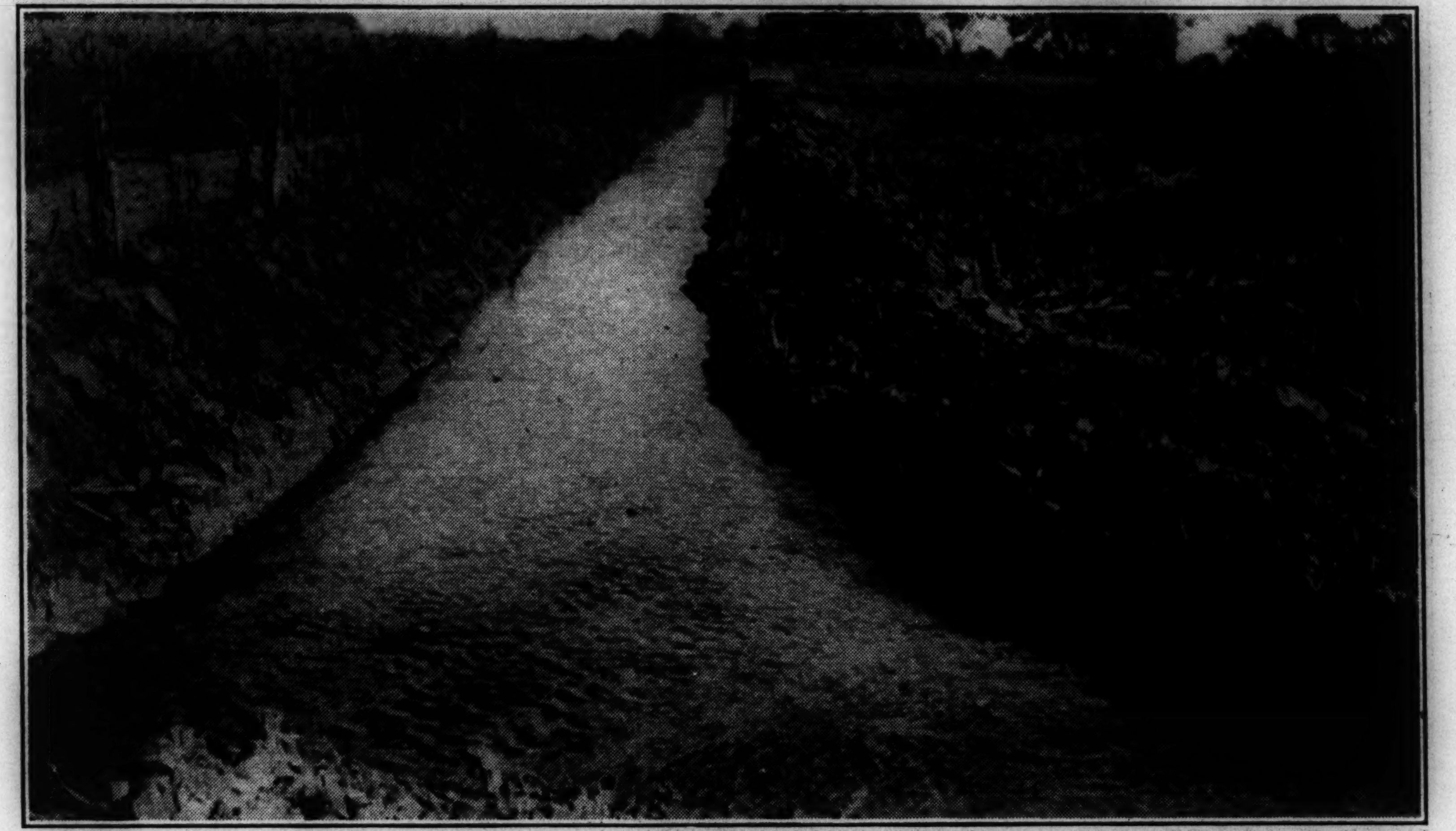


FIG. 2. Ditch 1.5 x 6.5 constructed in the territory shown in Fig. 1, with plow and scraper at a cost of $0.17 per lineal foot and $0.51 per cubic yard.

It is generally more economical and practical to follow the original water courses, but those in question contained so many meanders that it was deemed expedient to connect by a new confined channel to the river the upper reaches where they obtained most of their flow with the point where they joined to flow in a confined channel to the river. This procedure diverted the surface water that had hitherto flooded the town and with the deepening and training of the old meandering channels it was possible to equip them to carry a considerable amount of seepage and storm water. The seepage pools were connected by ditches and finally led into main drainage canals.

To accomplish the complete drainage of the town and an area extending approximately a mile in each direction from the center thereof, it was necessary to construct 77,000 feet of ditches, entailing the movement of approximately 7000 cubic yards of dirt at a cost of $4300. The ditches were constructed wherever it was physically possible with the maximum use of teams, a practice that was found most economical. They ranged in size from seepage ditches one foot in depth and one foot wide to diverting canals four feet deep and six feet wide, striking an average of one foot deep and two and one-half feet wide.

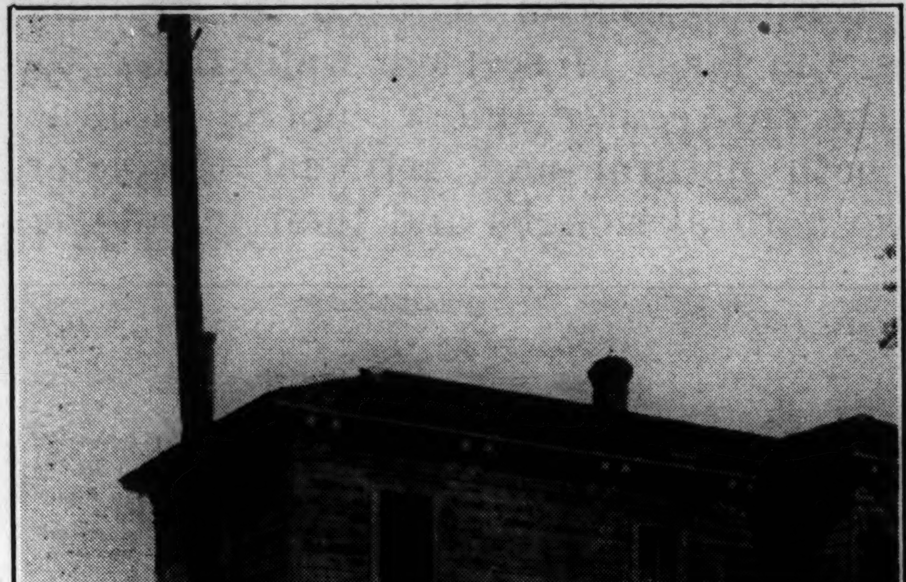


FIG. 3. Dwelling house improperly screened—a menace to the health of its occupants.

The ultimate aim was permanent control which infers either ditching or filling. This work could not be accomplished immediately of course and, to control those areas that had not been reached by permanent work, it was necessary to resort to oiling, accomplished by applying a film on the surface to kill the larvæ as they come to the surface to breathe. Two men using knapsack spray pumps that they replenished from a hundred gallon drum, mounted on a single wagon covered approximately eight square miles of ordinary territory, the period between oilings running from sixteen to twenty-one days. This estimate will apply in similar projects but will, of course, vary greatly in other sections where the breeding places are more widely separated or where they are less accessible to transportation of the oil drums. Over a large number of different types of breeding places it was found that 10.5 gallons of oil were required per acre and that each man averaged to apply four gallons of oil per hour figured from the number of gallons applied in an eight-hour working day. This average also will depend on the character of the breeding grounds, but as it represents a variety of different types, it may be approximately applied in many other projects. It was particularly enlightening as it was based on the entire time for which the laborers were paid, thus making allowances for transportation, break-downs and other incidental delays rather than on the actual spraying time which is only of passing importance. With laborers receiving from $4 to $4.50 per day, one horse teams at $2 per day and oil at 10 cents per gallon, the cost of treating an acre of breeding ground was $3.67 including incidentals like boots, pumps, repairs, etc., and omitting the cost of supervision which should approximate 10 per cent of the total cost.

In order to encourage the screening of homes the project undertook the installation of screens providing the houseowners would purchase the screen. The merchants of the town cooperated by selling the screen at $0.0425 per quare foot, which was cost f.o.b. Anderson. As a result of this proposition the project screened, with sixteen mesh galvanized screen, forty houses which entailed the installation of two hundred sixty-six windows and ninety-nine new doors, omitting the countless number of screens and screen doors refitted and adjusted as well as several porches and many fireplace screens. The cost to the project was $613.04 representing the labor of a carpenter and helper as well as the screen for three homes of indigent owners. The cost to the owners for screening, hardware, new doors and in some cases frames amounted to $475.

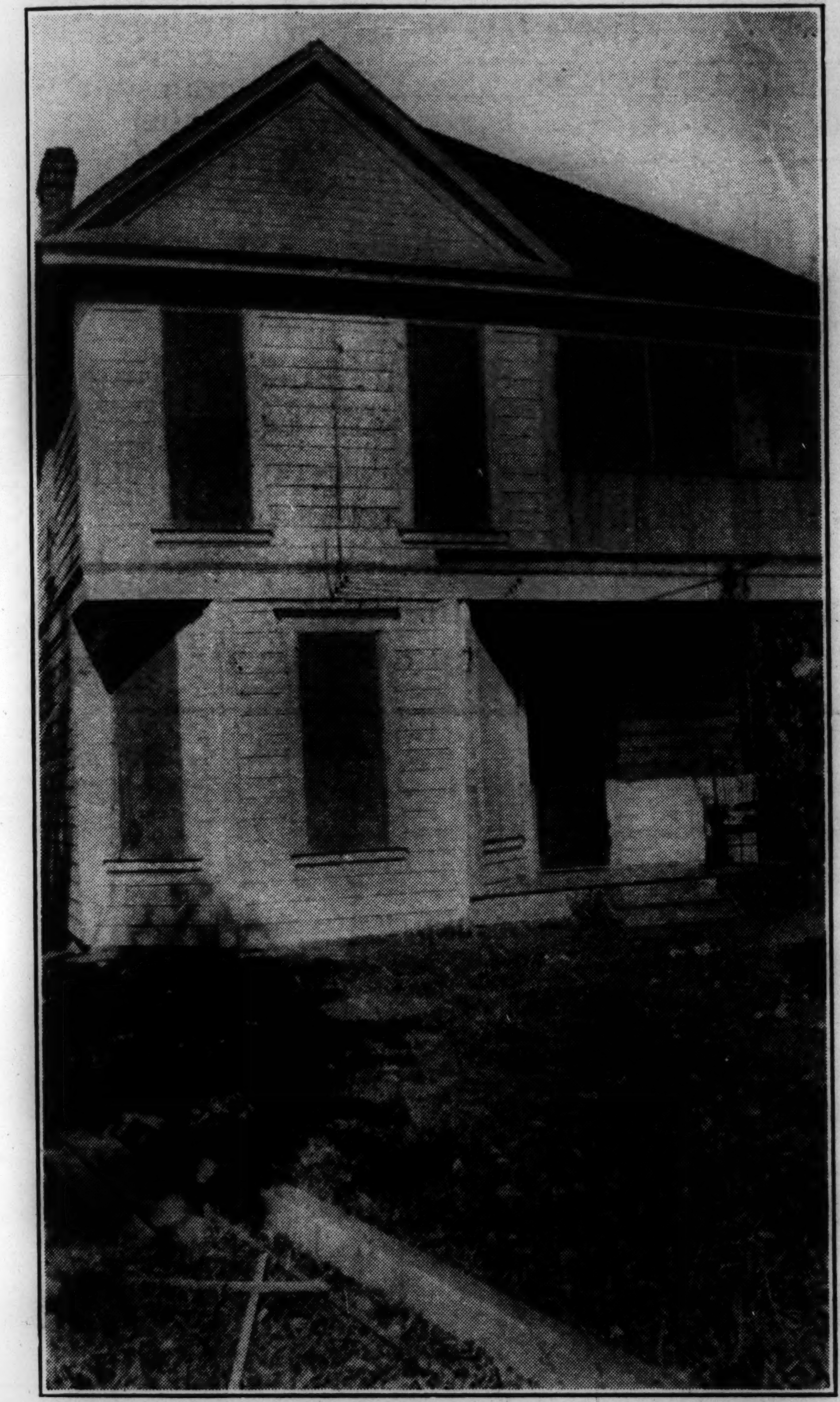


Fig. 4. Dwelling house properly screened, affording protection against malaria-bearing mosquitoes and house flies as well.

The "epidemic" of screening thus created reacted favorably on many owners and storekeepers that did not care to have the state authorities do the work with the result that near the close of the season but thirty-nine of the one hundred sixty-nine occupied buildings, including those devoted to commercial purposes, remained unscreened. As the end of the active mosquito season was approaching rapidly at this time, several of the owners of unscreened homes elected to wait until early spring rather than subject the screen to the winter rigors unnecessarily, thus adding a year to the life of the screen.

Treatment.

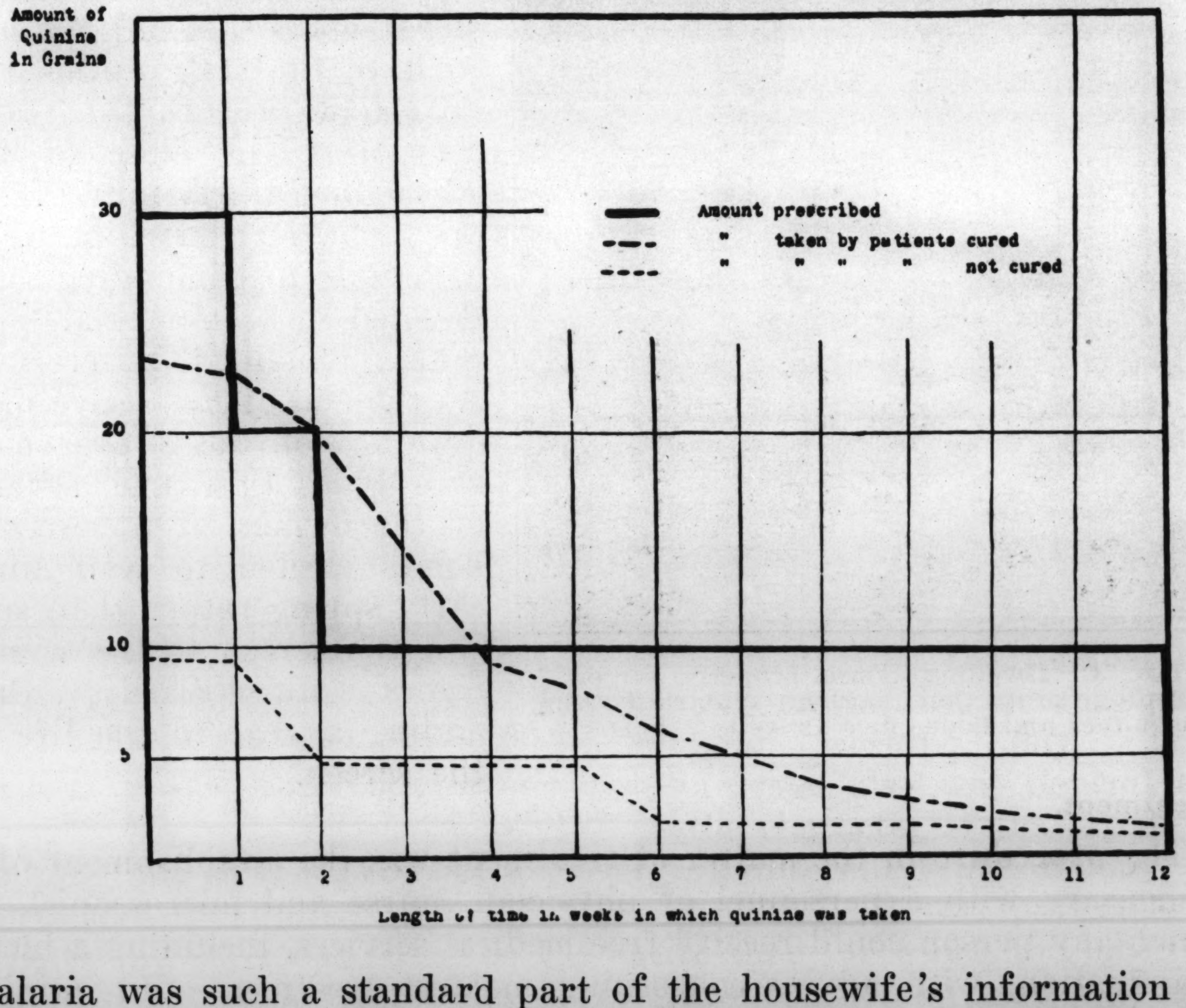
The procedure in the matter of treatment was the establishment of a dispensary with a personnel of physician, nurse and microscopist, at which any person could receive free medical services, including a blood examination, with advice concerning malaria treatment and quinine sulphate in five-grain capsules at cost—one cent a capsule.

The dispensary received during its three months of existence four hundred eighty-five patents, two hundred eight-one of whom proved to be positive, seventy-two with tertian malaria and two hundred and nine with estivo-autumnal. The general advice to patients regarding the administration of quinine which, of course, was varied many times on account of personal idiosyncrasies, etc., was that the adult patient should take ten grains of quinine three times a day for one week followed by twenty grains daily for one week after which the patient took ten grains daily for ten weeks. The divisions of the original adult dose for children's use was:

Under 1 year	.5 grains
1 year	1 grain
2 years	2 grains
3- 4- 5 years	3 grains
6- 7- 8 years	4 grains
9-10-11 years	6 grains
12-13-14 years	8 grains
15 years	10 grains

At the close of the work it was possible to obtain smears from seventy-six patients that had come under observation and treatment at the inauguration of the dispensary. Sixty-four, or 84.2 per cent, were negative for the malarial parasites and had had no recurrence of clinical symptoms and but twelve, or 15.8 per cent, were still positive. Of these twelve, but five showed parasites of the active type, the other seven demonstrating only the sexual, latent types of the parasite.

The work of treatment was not limited to the dispensary visits but was supplemented by house calls at numerous intervals by both the physician and the nurse. Unfortunately, the quinine treatment of malaria was such a standard part of the housewife's information on "Home care of the sick" that the doctor's advice was treated, in a majority of cases, in an extremely loose manner resulting in varied systems of administration all tending to eliminate treatment as soon as, or shortly after, the cessation of active symptoms.



The following chart emphasizes this tendency as well as the importance of starting treatment with relatively large doses. The successful cases averaged to take slightly better than twenty grains of quinine per day throughout the first week of treatment, while the failures took only slightly over nine. Tertian malaria responded to treatment much more readily than estivo-autumnal, every case of the former type that came under observation being apparently cured. The cured cases of the estivo-autumnal type averaged to take four hundred ninety-two grains of quinine over forty-one days averaging twelve grains per day. In the same way the tertian cases consumed three hundred eighty-six grains in thirty-nine days with a daily average of eleven grains. The unsuccessful cases (all estivo-autumnal) on the other hand took but one hundred eighty-two grains each over thirty-one days, thus averaging but five grains per day.

In connection with the work of the dispensary the project was very fortunate in obtaining the services of the psychologist of the Children's Bureau of the State Board of Control to make a series of psychological tests of school children suffering with malaria. As was pointed out in this officer's unpublished report, "The study of this disease (malaria) seemed to show or suggest that it is accompanied by some mental impairment." The tests used were the Standard Revision of the Binet-Simon Scale for the measurement of intelligence. In the examination of ninety-four children known to have malaria, twenty-two were normal, forty-one were subnormal, including three rated as feeble-minded and thirty-two were accelerated. These ratings combined show an average retardation of .75 of a year in mental age which, to quote from the report, "cannot with certainty be said to be due to the presence of malaria, but I know of no other cause to which to attribute it." These examinations had no relation to the school grades but a consideration of the children's age and school grade showed the rather startling fact that over thirty per cent were retarded one or more grades. The cause for this situation seems to be readily explained by the fact that the first eight grades of school showed a loss of thirty-five per cent of time through inattendance in one month, due largely, according to the emphatic statements of the teachers, to malarial infections; it therefore seems fairly safe to assume that malarial infections, although lowering the intelligence quotient to a slight extent, exert their major retarding effects through loss of school time.

Conclusions.

The final results of this entire project rest in the future as the next mosquito season will demonstrate the success or failure of the measures undertaken. Due to the lack of funds the various phases of the work were not carried to an ideal point, but nevertheless, the work stands as a finished product as far as it was carried, probably to a minimum safety limit. No opportunity was overlooked to make the work complete to the limit of operations. The methods that other projects have found successful were followed in every instance and the zeal of the local authorities to whom the work was turned over, will be the deciding factor in its success or failure. The town of Anderson, situated in the heart of a section that has no equal in California from the standpoint of some of its agricultural potentialities, is destined for a period of growth and prosperity that is as sure to follow as is humanly possible to predict and the beginning of this period is dependent only on the control of malaria now in the hands of those most interested, the citizens of the district.

Acknowledgments.

The writer, who was nominally in charge of the work, wishes to acknowledge his indebtedness for the source of the statistics incorporated in this paper and for the most generous cooperation and support throughout the work to the project staff made up of the following personnel:

Physicians—Dr. Allen F. Gillihan, State District Health Officer; Dr. O. F. Johnson, Sacramento, California.

Superintendent—Mr. Mason E. Franklin, Sanitary Inspector, California State Board of Health.

Nurse—Miss Lydia Husu, California State Board of Health.

Microscopist—Miss Lou Ina Bates, California State Board of Health.

Phsychologist—Dr. Kate Gordon, California State Board of Control.

To Professor W. B. Herms of the University of California, Consulting Entomologist for the State Board of Health, the writer is indebted for his helpful criticism and constant enthusiasm in the work.

Dr. Frank Kelly and Miss Ida May Stevens of the Bureau of Communicable Diseases and Dr. J. C. Geiger of the United States Public Health Service rendered immeasurable services during the early part of the work in making and determining malaria smears. To the members of the Anderson mosquito abatement district and to Professor Parker Talbot, county agent of Shasta County, the personnel of the project extend their hearty appreciation of the many favors extended them during their sojourn in Anderson.

SUBSTITUTES CHEAPER THAN POTATOES.

By M. E. Jaffa, M.S., Consulting Nutrition Expert
California State Board of Health.

The women of the state are being urged to use substitutes for potatoes,—both for the purposes of economy, and also to lessen the demand for white potatoes, and thus help to reduce the price.

Potatoes are now the most expensive "starchy" food on the market, for while the *price per pound* may be less than that of rice, macaroni, or corn meal, it must be remembered that potatoes contain about eighty per cent of water, while the substitutes mentioned contain only approximately ten per cent of water.

The percentage composition of potatoes and substitutes is given herewith:

	Water, per ct.	Protein, per ct.	Fat, per ct.	Starch, sugar, etc., per ct.	Crude fiber, per ct.	Ash, per ct.	Calories, per lb.	Cost per lb.	
								Raw	Ready to serve
Potatoes:									
Average, raw	78.3	2.2	.1	18.0	.4	1.0	385	9.0	--------
Cooked	75.5	2.5	.1	20.0	.6	1.0	440	--------	10.6
Macaroni, raw*	10.3	13.4	.9	74.1	--------	1.3	1665	12.5	--------
Macaroni, cooked	78.4	3.0	1.5	15.8	--------	1.3	415	--------	3.1
Rice, raw	10.3	8.0	.3	81.0	--------	.4	1630	16–20	--------
Rice, boiled	72.5	2.8	.1	24.4	--------	.2	525	--------	5.3–6.6
Corn meal, raw	12.5	9.2	1.9	75.4	--------	1.0	1655	6.5	--------
Cooked (mush)	80.0	2.1	.4	17.3	--------	.2	365	--------	1.6
Beans, raw	9.92	20.84	2.26	58.62	4.25	4.11	1600	10.0	--------
Beans, cooked	74.80	6.00	.60	16.30	1.20	1.10	445	--------	2.8

*The figures given for macaroni can be used also for spaghetti and vermicelli.

It will be noticed from the above table that there is little difference between the composition of raw potato, edible portion, and the cooked article, and it must be further remembered that the edible portion represents only about five-sixths of the original purchase; so that if one pays, say 4.5 cents a pound for the raw article, the edible portion will cost 10.6 cents a pound. On the other hand, when one pays 12.5 cents a pound for macaroni, spaghetti or vermicelli, there is no waste whatever.

The comparison between the raw potato and the raw substitutes is not a fair one. These foods should be compared when ready to serve. One pound of raw potatoes, edible portion, when cooked, will not increase in weight. In other words, one pound of cooked potatoes represents approximately one pound of the raw article. On the other hand, when macaroni or any paste is cooked, it absorbs water to the extent that one pound will result in approximately four pounds cooked. Therefore the price of cooked macaroni is about 3 cents a pound as against 10.6 cents for one pound of cooked potato. There is, however, little difference in the total food value as expressed in calories. The cooked macaroni ranks higher in protein and mineral matter than does the potato while the latter shows a somewhat higher percentage of starch.

Rice costs 16 to 20 cents per pound, raw. One-third of a pound absorbs enough water to weigh one pound when cooked, and therefore one-third of a pound of raw rice equals one pound cooked rice, which contains less water and more starch than does the cooked potato, and costs between 6 and 7 cents as against 10.6 for the potato.

The foregoing statements refer to the use of white rice, or head rice, but as far as nutrition is concerned, the consumer would be much more benefited by the consumption of the brown rice, and not the white rice, in that the former contains so much more mineral matter and vitamines than are present in the latter. Considerable of this valuable part of the brown rice, however, will be lost to the consumer if the water in which the rice is cooked is discarded. This is the reason for strongly urging the steaming of rice, or preparing in a double boiler, with no excess of water added. Otherwise the water in which the rice is cooked should be utilized in soup.

Corn meal is found to cost, when cooked, less than 2 cents per pound. Fried corn meal mush and syrup will cost appreciably less per pound than will cooked potato, and at the same time furnish more calories.

It must not be forgotten in making such substitutions that potatoes are valuable on account of the content of base-forming elements. The cereals, on the other hand, contain an excess of acid-forming elements. If macaroni is substituted largely for potatoes and the base-forming elements not supplied from other sources, the substitution might bring about undesirable results on account of macaroni containing an excess of acid-forming elements. It is therefore necessary to be sure that there is an ample supply of fresh vegetables and fruit to furnish these base-forming elements in order to make up the deficiency caused by the withdrawal of the potatoes.

BEANS AS POTATO SUBSTITUTE.

Beans are usually considered as a meat substitute rather than a potato substitute. This comparison is based on the consideration of the raw materials as purchased in that, dried beans and lean meat will yield on the average, about 20 per cent of protein; but is must be remembered that the only true comparison is that made between foods *ready to serve.*

It is shown by the table that cooked beans and cooked potatoes contain practically the same amount of water and therefore the same quantity of total solids.

The beans contain 6 per cent protein while the potato shows but 2.5 per cent. The potato, however, leads slightly in the percentage of starch. The mineral content is the same for both, it therefore appears that beans are the most excellent substitute for potatoes, in that they supply nearly the same amount of starch, the same amount of mineral matter, and in addition, as much protein as would be furnished by two and a half ounces of round steak.

Furthermore, the cost of cooked beans, as shown in the table, is 2.8 cents per pound while the corresponding figure for potatoes is 10.6 cents per pound.

RICE: Brown vs. White.

By M. E. Jaffa, M.S., Consulting Nutrition Expert
California State Board of Health.

The analyses of brown rice, milled rice (or head rice), and coated rice, are as follows:

Ingredients	Brown rice, per cent	Milled or head rice, per cent	Coated rice, per cent
Water	11.13	12.45	12.36
Ash	1.46	0.38	0.82
Protein	6.50	5.87	5.69
Starch, sugar, etc.	78.09	80.27	80.14
Crude fiber	0.61	0.24	0.34
Fat	2.43	0.79	0.65
Calories (fuel value) lb.	1,638	1,600	1,607

The coated rice is the milled, or head rice, which has been treated with talc and glucose.

An examination of these figures will show that the brown rice contains more protein, ash, and fat than is noted for the milled, or head rice. The difference, however, in food value, particularly when growth is concerned, or when nervous people are concerned, is far greater than that noted by the difference indicated by the figures, showing the content of the respective nutrients. The mineral matter in the brown rice is almost four times as much as noted for the milled rice, or white rice. Quite often we have the highly milled rice showing less than .25 per cent, while we often have brown rice showing as high as 1.75 per cent of mineral matter.

Again, the brown rice contains food accessories, or as termed by some, vitamines, small in amount, but very important in the matter of nutrition. These are not present, or to an almost negligible amount in the white rice. The nutritive value of the brown rice, therefore, it would appear is far higher than that of white rice. The former should be used in the case of young children and it is also far better for adults, particularly those nervously inclined. At the same time we must not conclude that white rice has no food value, or similarly, that white flour has no food value, because graham is better in most cases. This is not true. The white rice has a high food value in that the starch and the protein are easily digested and easily assimilated, and if supplemented by other foods rich in vitamines,—fresh fruit, vegetables, milk, meat, etc., there should be no objection to its use.

The fact remains the same, however, that under present conditions the cattle and poultry receive the rice products such as rice bran and rice polish, which contain these valuable accessories, while for human food there is reserved that which is poorest in these substances.

A word or two may not be out of place in connection with the cooking of the brown rice. It should not be so prepared as to necessitate the discarding of the water in which it is cooked. In other words, it should not be treated as is ordinary white rice. A considerable portion of the food accessories or vitamines and mineral matter are dissolved by water, and if this is thrown away, much valuable material is lost to the consumer. The best results will be attained when it is prepared as steamed rice or cooked in a double boiler with just a sufficient amount of water to result in a dry, grainy rice. The proportions are 1 cup of rice to 2¼ or 2½ cups of water. The time required for cooking is 1½ hours, which is about 50 per cent longer than that required for cooking a similar preparation of the white rice. It may be considered as edible after one hour's cooking, but it is far better if allowed the longer time.

MONTHLY BULLETIN

CALIFORNIA STATE BOARD OF HEALTH

Devoted to the Prevention of Sickness and Death

Entered as second-class matter, August 15, 1905, at the post office at Sacramento, California, under the Act of Congress of July 16, 1894. Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 27, 1918.

Sent free, on request, to any citizen of California.

IRVING R. BANCROFT, M.D., Secretary . . . Executive Officer
GUY P. JONES, Assistant to the Secretary . . . . . . Editor

Dr. Irving R. Bancroft of Los Angeles was elected secretary and executive officer of the California State Board of Health at the March meeting. Dr. Walter Lindley of Los Angeles at the same meeting succeeded Dr. Wm. LeMoyne Wills as a member of the Board. Dr. Wilfred H. Kellogg was appointed director of the Bureau of Communicable Diseases and Dr. Frank L. Kelly was appointed Chief of the Division of Epidemiology.

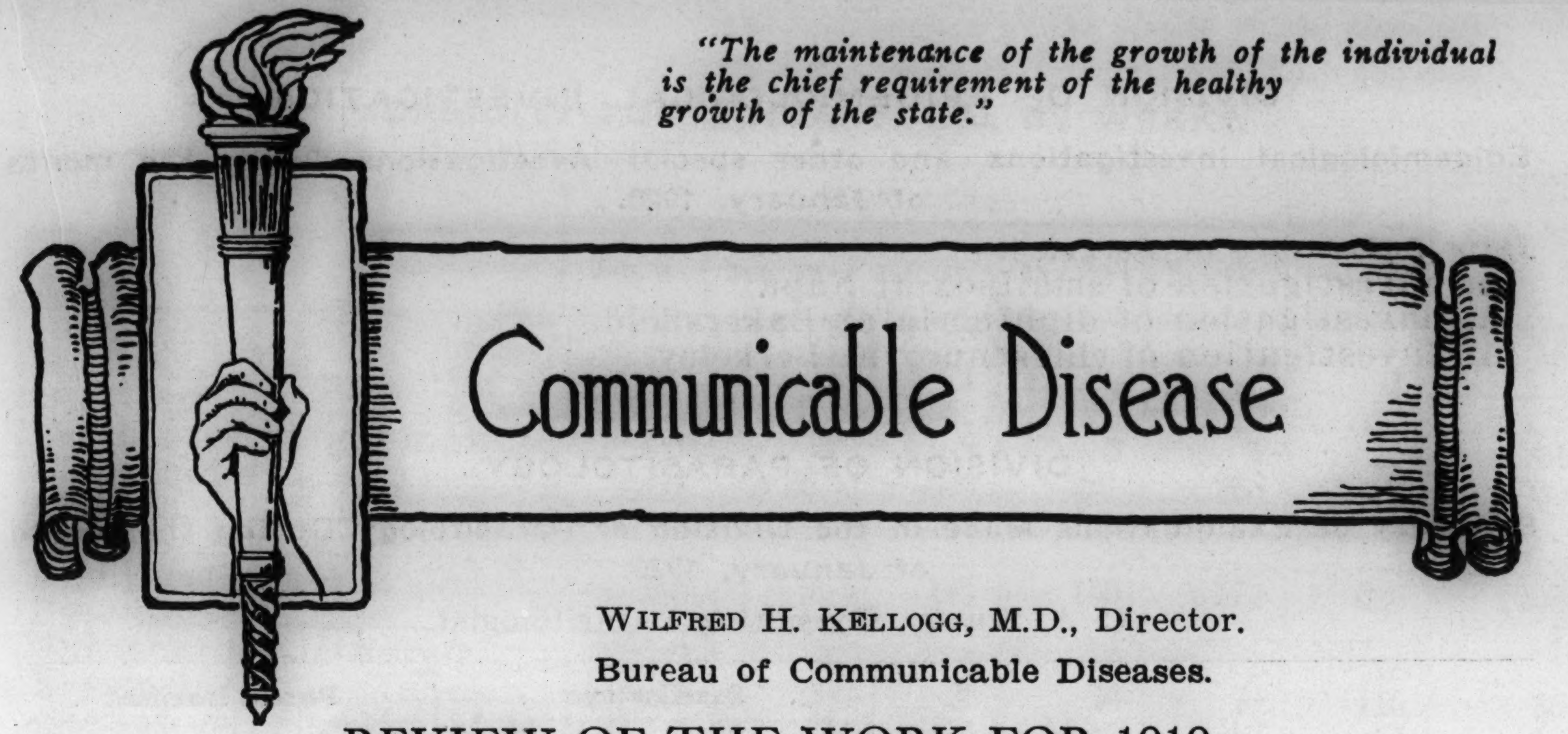
* * *

If the school building were a model of ventilation, lighting and sanitation, it would not only conserve the health of the school children, but also serve as an object lesson for hygienic instruction. In the same way cooking and domestic science classes could be made to serve the double purpose of providing a hygienic noon meal and training the school children, especially the older girls, in the principles and practice of this vitally important subject. Our schools are suffering from the conventional idea that education comes from books. Education is preparation for life and should make use of every efficient method and element, manual training, athletics, observational nature study, laboratory experiments, and object lessons of all sorts, as well as book instruction.—Irving Fisher.

* * *

The secret of health is to live the life for which we are constituted; but for centuries man has ignored this truth, and the loss of his health is the penalty demanded from him for having in his great cities permitted social development to outstrip natural evolution. Today his knowledge is sufficient to enable him to work with Nature instead of against her; to undo many of the evils that he has unwittingly created; and save the lives of his offspring now sacrificed to the blind driving forces of industry. To apply this knowledge widespread is one of the first tasks of Peace.—William A. Brend.

"The maintenance of the growth of the individual is the chief requirement of the healthy growth of the state."



Communicable Disease

WILFRED H. KELLOGG, M.D., Director.
Bureau of Communicable Diseases.

REVIEW OF THE WORK FOR 1919.

As this is the beginning of a new year it may be interesting to review the work of the Bureau for 1919. While the work of the diagnostic laboratory has increased greatly during the past year it is still not serving as large a proportion of the physicians of the state as it should. The main laboratory at Berkeley made 17,190 examinations last year for 900 different physicians and 60 institutions. In other words, we did work for only one out of every six physicians in the state. This shows that the laboratory is not being made full use of and we hope that 1920 will see a large increase in the number of our patrons. If physicians have suggestions and criticisms that will improve our work in any way we are always glad to receive them.

The Bureau distributed 11,675 outfits containing two ampoules of silver nitrate for the prevention of ophthalmia neonatorum, 839 complete treatments for typhoid-paratyphoid immunization, and administered either at the main laboratory or its deputized representatives 25 complete antirabic treatments.

There were 59 epidemiological investigations carried on, covering most of the different communicable diseases, the most important of which was the epidemic of pneumonic plague at Oakland.

DIVISION OF BIOLOGICAL EXAMINATIONS.

Report of Examinations made by the California State Hygienic Laboratory during the month of January, 1920.

Condition suspected	Positive	Negative	Inconclusive	Total
Anthrax	----------	2	----------	2
Diphtheria (diagnosis)	139	392	[1]15	546
Diphtheria (release)	179	357	[2]23	559
Diphtheria (special investigation)*	47	331	[3]5	383
Gonococcus infection	21	34	21	76
Malaria	3	14	----------	17
Meningitis	----------	2	----------	2
Paratyphoid (excreta)	----------	1	----------	1
Rabies	11	3	----------	14
Syphilis (Wassermann test)	101	699	60	860
Tuberculosis (sputum)	34	129	----------	163
Tuberculosis (spinal fluid)	1	----------	----------	1
Tuberculosis (urine)	----------	1	----------	1
Typhoid (excreta)	----------	4	----------	4
Typhoid (Widal test)	9	48	1	58
Miscellaneous	----------	----------	----------	5
Total	----------	----------	----------	2,692

[1]12 no growth.
[2]22 no growth.
[3]5 no growth.
*Bakersfield, 133; Blythe, 139; Fertilla, 30; Los Nietos, 20; Visalia, 61.

DIVISION OF EPIDEMIOLOGICAL INVESTIGATION.

Epidemiological investigations, and other special investigations during the month of January, 1920.

Main Laboratory at Berkeley—
An investigation of smallpox at Napa.
An investigation of diphtheria at Bakersfield.
An investigation of chickenpox at Berkeley.

DIVISION OF PARASITOLOGY.

Summary of Examinations Made in the Division of Parasitology During the Month of January, 1920.

C. A. Kofoid, Consulting Parasitologist.

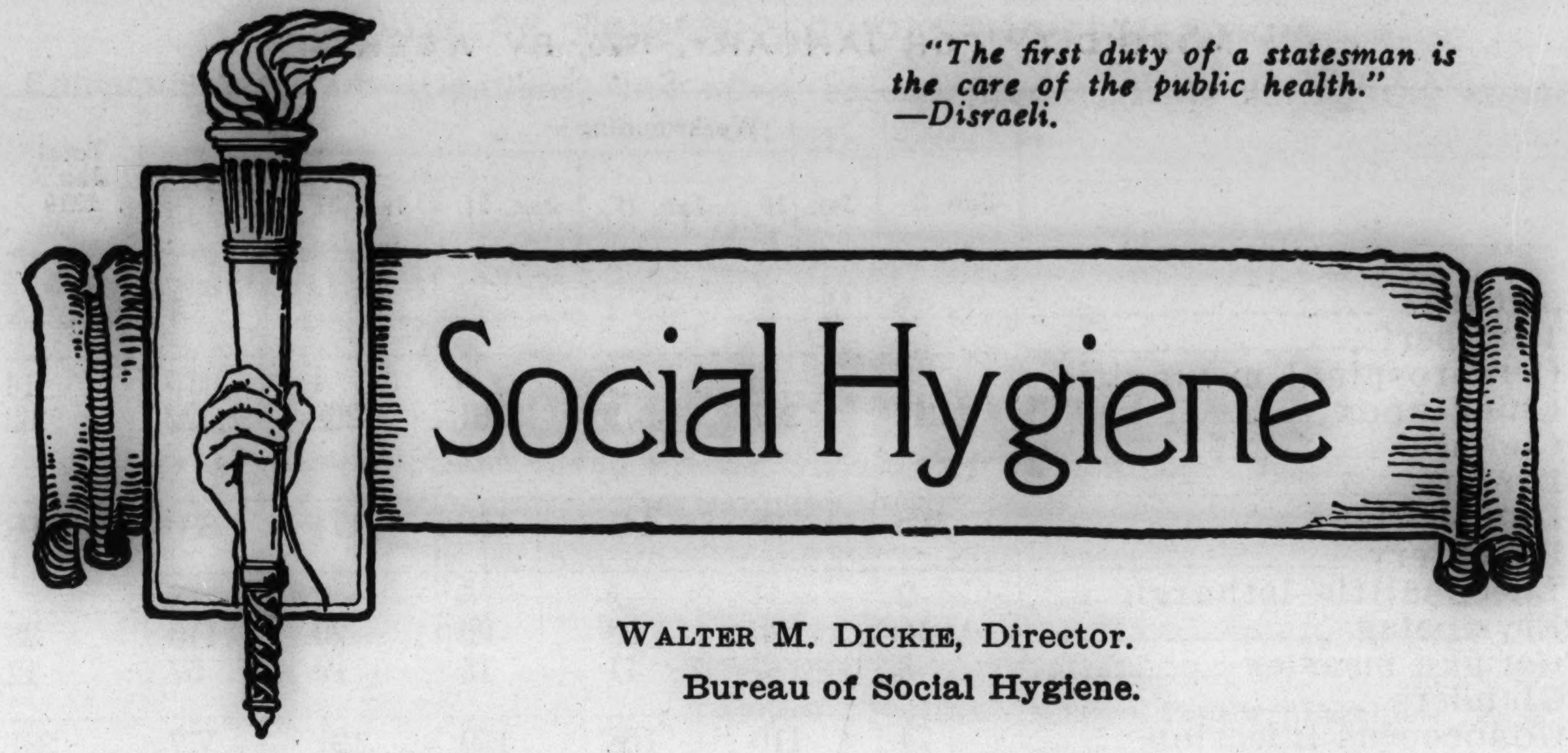
	Examinations			Persons examined		
	Positive	**Negative**	**Total**	**Positive**	**Negative**	**Total**
For worms:						
Fecal examinations made	42	179	221	18	48	66
Hookworm	3	218		1	65	
Oxyuris incognita	14	207		11	55	
Trichostrongylus orientalis	5	216		4	62	
Trichuris trichiura	37	184		8	58	
For protozoa:						
Fecal examinations made	229	10	239	50	9	59
Chilomastix mesnili	6	233		4	55	
Craigia hominis	5	234		1	58	
Giardia intestinalis	10	229		5	54	
Trichomonas intestinalis	5	234		5	54	
Endamoeba coli	31	238		22	37	
Endamoeba dysenteriae	40	199		20	39	
Endamoeba nana	55	184		34	25	
Endamoeba sp.	9	230		5	54	
For plant parasites:						
Blastocystis	76	163		37	22	
Phycomycete spore	14	225		13	46	
Yeasts	220	19		41	18	

One sputum test was made for Amoebae. The result was negative.

MORBIDITY FOR JANUARY, 1920, BY WEEKS.

	Weeks ending—					Total	Total Jan., 1919
	Jan. 3	Jan. 10	Jan. 17	Jan. 24	Jan. 31		
Anthrax			1			1	
Beri beri							
Cerebrospinal meningitis	1	3	2	5	4	15	14
Chickenpox	247	267	379	261	268	1,422	62
Cholera							
Dengue							
Diphtheria	108	98	141	159	174	680	208
Dysentery							1
Encephalitis lethargic	2	4	5	5	2	18	
Erysipelas	16	20	28	26	20	110	35
German measles	5	7	11	15	19	57	12
Glanders							
Gonococcus infection	74	110	108	159	121	572	281
Hookworm							
Influenza	25	34	336	1,930	8,407	10,732	64,459
Leprosy					1	1	1
Malaria	2	6	7	10	4	29	4
Measles	587	798	861	979	1,146	4,371	81
Mumps	100	196	209	192	134	831	227
Ophthalmia neonatorum	1	1		1		3	
Paratyphoid							
Pellagra							1
Plague							
Pneumonia	64	81	87	131	186	549	700
Poliomyelitis				1	1	2	2
Rabies							
Rocky Mountain spotted fever							
Scarlet fever	109	108	102	154	145	618	218
Smallpox	97	74	88	102	85	446	109
Syphilis	100	108	127	103	110	548	230
Tetanus	1		1	1		3	
Trachoma			3	2		5	2
Trichinosis				1		1	
Tuberculosis	232	199	191	139	184	945	656
Typhoid fever	13	5	15	11	12	56	33
Typhus fever							
Whooping cough	65	64	97	134	105	465	20
Yellow fever							
Totals	1,850	2,183	2,800	4,521	11,128	22,480	67,356

"The first duty of a statesman is the care of the public health."
—Disraeli.



Social Hygiene

Walter M. Dickie, Director.
Bureau of Social Hygiene.

Ampoules Distributed During the Month of January, 1920.

San Francisco Health Department Clinic	256
Stanford University Clinic	150
University of California Hospital	120
Stockton City Clinic	108
Los Angeles Health Department	100
Los Angeles County Hospital	100
Good Cheer Club Clinic, San Jose	96
Boyle Avenue Dispensary, Los Angeles	65
Pasadena Dispensary	60
Selwyn Emmett Graves Dispensary, Los Angeles	60
Fresno County Hospital	50
San Francisco Hospital	50
San Diego Venereal Clinic	50
Santa Clara County Hospital	36
San Bernardino County Hospital	30
Santa Barbara Cottage Hospital	24
Sacramento Health Department	20
Alameda County Public Health Center	12
Bureau of Catholic Charities, Los Angeles	12
Palo Alto Health Department	6
San Francisco Juvenile Detention Home	6
Berkeley Dispensary	5
Siskiyou County Health Officer	3
	1,419

Treatment Reports Received:

275	patients received one dose	275
152	patients received two does	304
104	patients received three doses	312
58	patients received four doses	232
39	patients received five doses	195
5	patients reecived six doses	30
3	patients received seven doses	21
2	patients received eight doses	16
1	patient received nine doses	9
639		1,394
	Ampoules wasted	32
		1,426

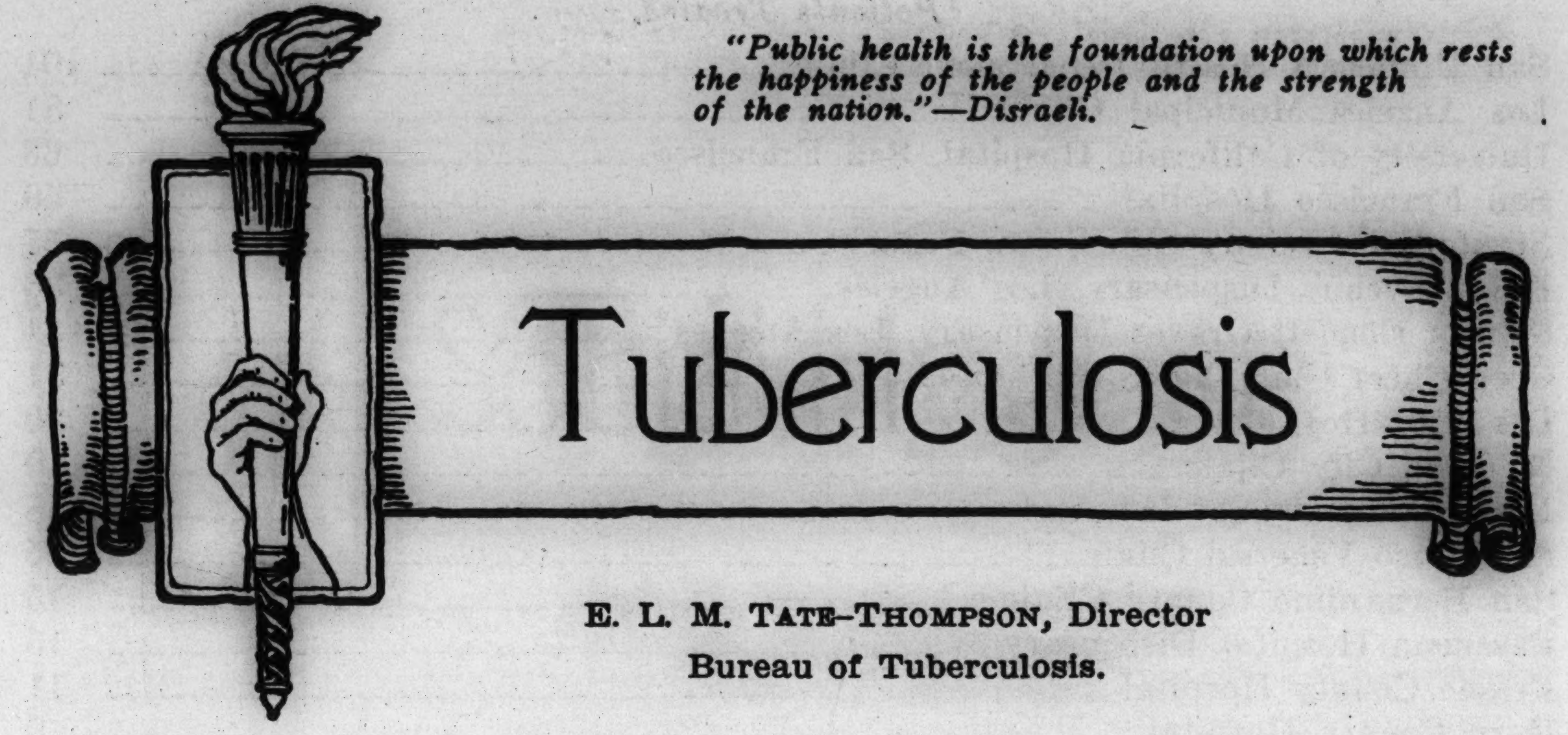
Other occupations	236
Housewives	153
Laborers	127
No occupation	63
Prostitutes	39
Students	21
	639
Males	351
Females	288
	639

Patients Treated.

San Francisco Health Department Clinic	101
Los Angeles Municipal Clinic	81
University of California Hospital, San Francisco	63
San Francisco Hospital	59
Stanford University Clinic, San Francisco	57
Boyle Avenue Dispensary, Los Angeles	36
Selwyn Emmett Graves Dispensary, Los Angeles	34
Good Cheer Club Clinic, San Jose	31
Los Feliz Hospital	20
Stockton City Clinic	19
Los Angeles County Hospital	18
San Diego Venereal Clinic	15
San Bernardino County Clinic	15
Pasadena Hospital Dispensary	15
Fresno County Hospital	11
Kern County Hospital	9
Sacramento County Hospital	9
Santa Barbara Cottage Hospital	7
Arroyo Sanitorium, Livermore	6
Los Angeles East Side Jail	6
Mission Valley Hospital, San Diego	5
San Bernardino County Hospital	5
Alameda County Public Health Center	4
Bureau of Catholic Charities, Los Angeles	3
Berkeley Dispensary	3
Riverside Clinic	2
Orange County Hospital	2
Palo Alto Health Department	1
Siskiyou County Hospital	1
San Joaquin County Hospital	1
	639

Total number of ampoules distributed		19,271
Total number of treatment cards received	18,511	
Total number of treatment cards distributed and not returned	760	
	19,271	

"Public health is the foundation upon which rests the happiness of the people and the strength of the nation."—Disraeli.



Tuberculosis

E. L. M. Tate-Thompson, Director
Bureau of Tuberculosis.

Two weeks of the month were spent going and coming from Chicago, in order that the director might attend the conference of state secretaries. Very many questions of importance to the tuberculosis program in all of the states were discussed at length.

The sale of Christmas seals and its far-reaching influence on the millions of people who buy and use these seals is a factor in the control of tuberculosis that cannot be overlooked. The larger municipalities are spending, as they should, large sums to handle their tuberculosis problem, but the local tuberculosis associations everywhere are pioneering new work in a fashion that speaks volumes for their intelligence and the amount of work which needs to be carried on. The war, the increased cost of living, and the aftermath of influenza, have brought new burdens and problems. Home care of patients must be emphasized, since every patient will be unable to remain indefinitely in sanatoria.

The program of prevention, and the discovery of cases which can respond to treatment, are the principal factors. With prevention comes the argument, whether it might not be best to drop all the actual work of caring for the tuberculous and spend the year bringing every school child below par to normal; true, it might upset the work of the teachers, but it might save the child when the added tax of adolescence comes. With this program in view, the director met with the tuberculosis committees in the coast counties, where a great deal of money has been raised to execute a program that will mean not this year but in five, a definite reduction of the tuberculosis deaths. Ventura county will soon have their school nurse; Santa Barbara county has already moved their open air school into a larger building and will soon be able to arrange for transportation for children who need to be brought from different parts of the city. A tuberculosis clinic is to be opened and dental care given those attending the clinic. The county nurse will also be paid from the Seal fund; at Santa Maria the work of the visiting nurse there will be extended into the northern end of the county. Santa Barbara county can well be proud of the public health machinery. The supervisors have cooperated in every way to make their part of the work a success. The Antonio Sanatorium is in a position now to give excellent care.

At San Luis Obispo a meeting was held with the committee. Extensive and constructive plans are on foot to work out a splendid program with the Junior Red Cross and the tuberculosis committee. There will be three county nurses to cover the county and special emphasis will be laid on the prevention of tuberculosis among school children.

At Salinas the tuberculosis committee has already been appointed. Malnutrition clinics and dental clinics are crying needs in that county. In less than a month the nurse has reported a number of tuberculosis cases needing immediate attention. None of this work could be possible if we did not have the splendid cooperation that we have from the County Superintendent of Schools in each county.

From Ventura to San Francisco we shall soon be able to check up on most of the contributory causes to tuberculosis. Some time has been spent in San Francisco in the hospital there. The fact that one hundred and fifty thousand dollars is available for constructive work outside of the hospitals, and that the money alone is not as important as the fact that fifteen million seals at a penny each were purchased by people who believe that tuberculosis can be controlled is a hopeful sign worth considering.

Hospitals Inspected.

La Vina (2).
Springville.
Stony Brook (2).
San Francisco (2).
Weimar (2).
Santa Barbara (1).
Barlow (1)
All of the Private Sanatoria.

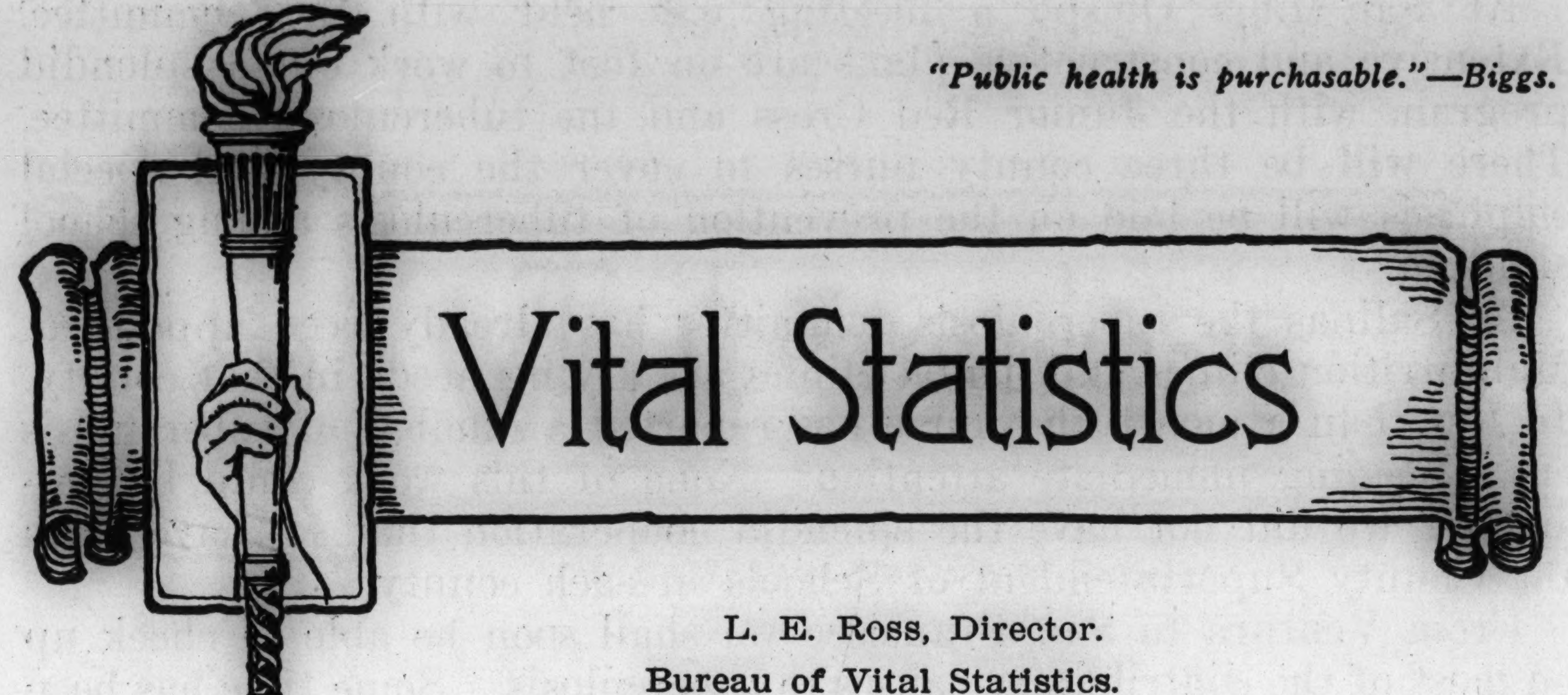
ANNUAL REPORT OF TUBERCULOSIS WORK FOR THE YEAR 1919.

Anti-Tuberculosis Society of Pasadena, California.

Clinics held		101
Treatments given		400
Positive cases:		
1. Children	6	
2. Adults	19	25
Observation cases:		
1. Children	74	
2. Adults	67	141
Cases reported to health department		14
Cases investigated		310
Patients sent to sanitorium		11
Patients referred to other clinics		20
Patients died		8
Patients discharged		28
Cases from 1918		52
Home visits		1,138
Miscellaneous calls		448
Meetings attended by nurse		44
Milk provided. Quarts		75
Pieces of literature distributed		175
Visits made by patients to clinics		580
Children sent to summer camp		80
Children referred to open air school		25

VERA M. CLARK, Social Worker.

"Public health is purchasable."—Biggs.



Vital Statistics

L. E. Ross, Director.
Bureau of Vital Statistics.

Births, Deaths and Marriages for Certain Counties and Totals for California: December, 1919.

County	Births	Deaths	Marriages
Alameda	526	352	445
Contra Costa	55	38	36
Fresno	234	120	187
Kern	86	44	58
Los Angeles	1,395	1,119	977
Monterey	43	33	31
Orange	108	65	128
Sacramento	161	115	165
San Bernardino	135	89	91
San Diego	168	110	195
San Francisco	772	698	505
San Mateo	33	43	47
San Joaquin	140	120	116
Santa Clara	151	145	163
Stanislaus	68	31	53
Tulare	101	50	55
Balance of state	928	730	814
Totals	5,118	3,902	4,066
Rate per 1,000 population	16.0	12.2	12.7

Births and Deaths for Certain Cities, December, 1919.

	Births	Deaths		Births	Deaths
Alameda	41	33	Richmond	24	11
Bakersfield	55	24	Sacramento	125	98
Berkeley	93	47	San Bernardino	36	40
Fresno	97	44	San Diego	131	80
Long Beach	78	67	San Francisco	772	698
Los Angeles	950	704	San Jose	57	52
Oakland	344	212	Santa Ana	29	27
Pasadena	66	53	Stockton	82	68

Distribution of Deaths From Certain Endemic Diseases, With Total Cases Reported and Indicated Fatality Rates, December, 1919.

Typhoid Fever.

Locality	Deaths
Butte County	1
Fresno County	1
Los Angeles County	1
Los Angeles City	4
San Francisco	2
San Joaquin County	1
Total deaths	11
Total cases reported	37
Indicated fatality	30 per cent

Scarlet Fever.

Locality	Deaths
Oakland	1
Los Angeles County	1
Los Angeles City	3
Mendocino County	1
San Francisco	3
San Joaquin County	3
Vallejo	1
Sutter County	1
Total deaths	14
Total cases reported	337
Indicated fatality	4 per cent

Whooping Cough.

Locality	Deaths
Oakland	2
Fresno City	1
Los Angeles County	1
Los Angeles City	1
Sacramento County	1
San Diego City	1
San Francisco	1
Ventura County	1
Total deaths	9
Total cases reported	160
Indicated fatality	6 per cent

Diphtheria.

Locality	Deaths
Oakland	1
Amador County	1
Fresno County	5
Fresno City	1
Los Angeles County	1
Los Angeles City	3
Pasadena	1
Orange County	2
Riverside City	1
Sacramento County	1
San Francisco	8
San Joaquin County	1
Stockton	1
Santa Barbara County	1
San Jose	2
Solano County	2
Vallejo	3
Stanislaus County	1
Total deaths	36
Total cases reported	425
Indicated fatality	8 per cent

Influenza.

Locality	Deaths
Alameda County	1
Calaveras County	1
Contra Costa County	1
Fresno City	2
Los Angeles County	2
Los Angeles City	2
Mendocino County	1
Napa County	2
Plumas County	1
San Francisco	3
Ventura County	1
Yolo County	1
Total deaths	18
Total cases reported	111
Indicated fatality	16 per cent

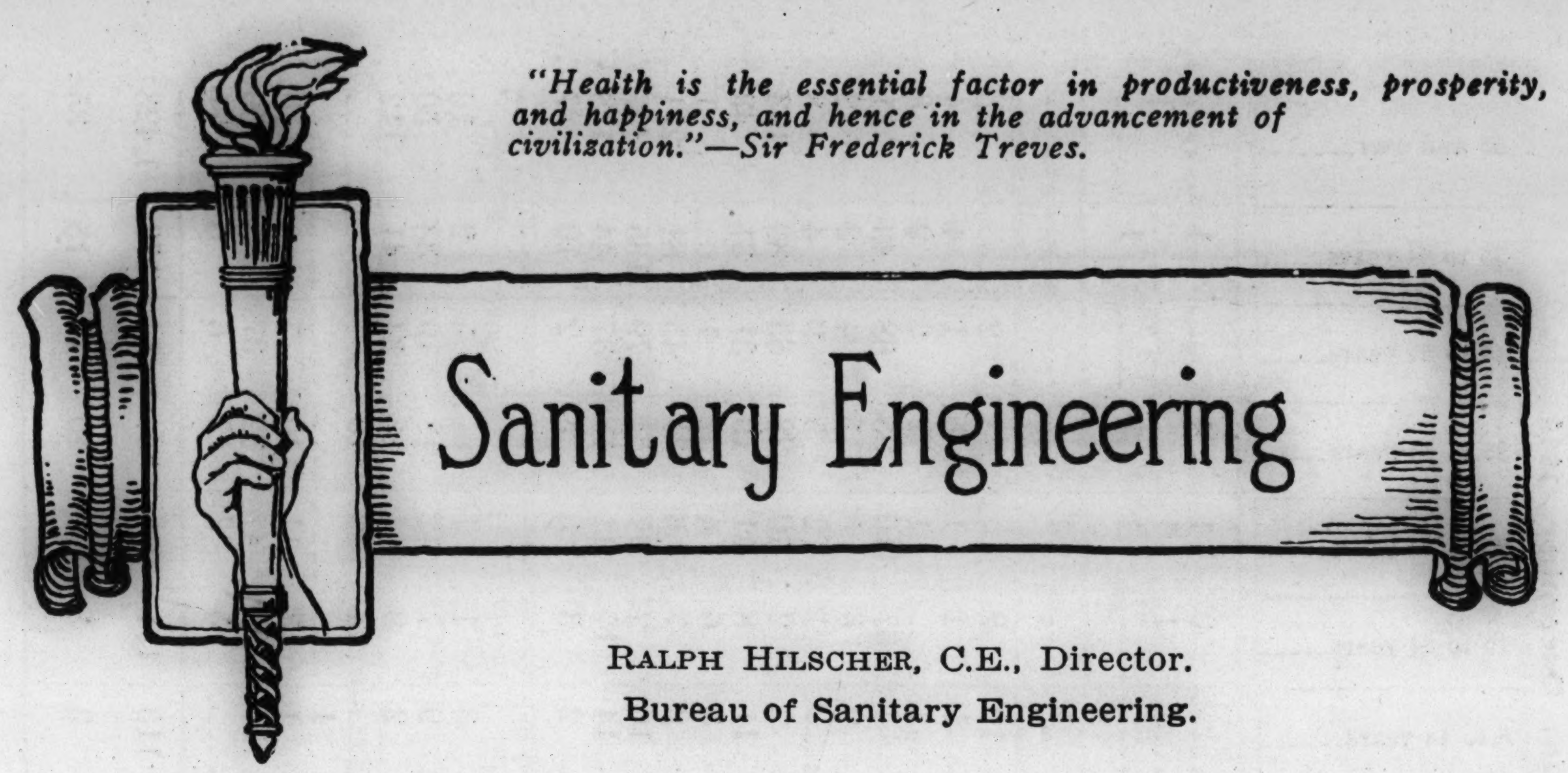
Infant Deaths by Age Periods, Sex, Race and Maternal Nativity for California: December, 1919.

	Total	Sex		Race						Mothers born in—			
		Male	Female	White	Black	Indian	Chinese	Japanese	Other	California	Other U. S.	Foreign	Unknown
Under 1 day	73	42	31	71				2		24	31	16	2
Under 10 days	80	48	32	70			1	9		26	21	31	2
Under 1 month	43	26	17	40				3		15	9	18	1
Under 2 months	36	24	12	30				6		7	8	19	2
Under 3 months	24	17	7	20			1	3		8	7	9	
Under 4 months	19	14	5	17				2		7	3	9	
Under 5 months	13	7	6	11				2		1	2	10	
Under 6 months	14	7	7	14						2	4	8	
Under 7 months	6	5	1	5				1		4		5	
Under 8 months	12	6	6	10		1		1		1	2	6	
Under 9 months	7	3	4	6				1		3	1	3	
Under 10 months	4	2	2	3			1			1	1	2	
Under 11 months	8	4	4	8						3	2	3	
Under 12 months	6	3	3	6						1	2	3	
Total infant deaths	345	208	137	311		1	3	30		103	93	142	7
Total births	5,119	2,714	2,405	4,689	25	4	34	362	5	1,545	1,921	1,652	1
Infant mortality rate	67			66				88					

Deaths by Certain Principal Causes Classified by Sex, Race and Age Periods, for California: December, 1919.

	Total	Sex		Race						Under 1 year	1 to 4 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 and over
		Male	Female	White	Black	Indian	Chinese	Japanese	Other									
Typhoid fever	11	9	2	8	-----	-----	-----	3	-----	1	1	-----	3	1	4	-----	1	-----
Malaria	3	2	1	3	-----	-----	-----	-----	-----	-----	-----	-----	1	1	-----	-----	-----	1
Smallpox	3	1	2	3	-----	-----	-----	-----	-----	-----	-----	-----	-----	1	1	-----	1	-----
Measles	8	6	2	7	-----	-----	-----	1	-----	-----	5	3	-----	-----	-----	-----	-----	-----
Scarlet fever	14	8	6	13	1	-----	-----	-----	-----	-----	8	5	-----	1	-----	-----	-----	-----
Whooping cough	9	2	7	7	-----	-----	-----	2	-----	4	5	-----	-----	-----	-----	-----	-----	-----
Diphtheria	36	17	19	36	-----	-----	-----	-----	-----	1	13	16	2	-----	2	2	-----	-----
Influenza	18	10	8	17	-----	1	-----	-----	-----	1	-----	1	1	1	5	1	4	4
Other epidemic diseases	18	12	6	18	-----	-----	-----	-----	-----	-----	2	1	-----	1	2	2	2	8
Tuberculosis of lungs	426	271	155	388	8	2	12	16	-----	1	1	4	67	110	95	68	49	31
Tuberculosis of other organs	43	20	23	40	-----	1	-----	2	-----	2	8	9	6	5	5	4	2	2
Syphilis and gonorrhea	33	25	8	29	3	-----	2	-----	-----	4	-----	-----	1	2	5	9	4	8
Cancer	322	148	174	310	4	-----	3	5	-----	-----	2	2	2	10	28	65	80	133
Other general diseases	158	92	66	153	1	-----	4	-----	-----	2	2	11	8	11	19	31	31	43
Meningitis	22	13	9	21	-----	-----	1	-----	-----	4	1	3	6	4	2	1	-----	1
Other, nervous system	391	219	172	384	1	-----	5	1	-----	6	2	2	7	6	31	45	81	211
Diseases, circulatory system	795	448	347	767	7	1	17	3	-----	-----	1	10	2	17	54	79	135	497
Pneumonia and broncho-pneumonia	360	218	142	338	5	4	5	8	-----	55	26	14	17	11	18	37	44	138
Other, respiratory system	73	43	30	72	-----	-----	-----	1	-----	9	2	2	3	3	5	2	10	37
Diarrhea and enteritis, under 2 years	61	33	28	53	-----	-----	-----	8	-----	48	13	-----	-----	-----	-----	-----	-----	-----
Diarrhea and enteritis, 2 years and over	26	15	11	25	-----	-----	1	-----	-----	-----	4	3	1	1	-----	5	2	10
Other, digestive system	159	106	53	155	1	1	2	-----	-----	6	5	9	7	12	18	19	33	50
Bright's disease and nephritis	237	139	98	229	4	-----	4	-----	-----	-----	2	2	9	14	23	34	41	112
Childbirth	46	-------	46	42	-----	-----	-----	4	-----	-----	-----	-----	14	22	10	-----	-----	-----
Diseases of early infancy	198	122	76	181	-----	1	1	15	-----	192	5	1	-----	-----	-----	-----	-----	-----
Suicide	51	35	16	48	-----	-----	2	1	-----	-----	-----	1	3	11	10	7	9	10
Other violence	264	205	59	246	2	1	7	8	-----	4	8	17	25	47	32	37	38	56
All other causes	117	73	44	112	2	1	1	1	-----	3	4	-----	5	7	15	6	6	71
Totals	3,902	2,291	1,611	3,704	39	13	67	79	-----	345	119	115	191	298	384	454	573	1,423
Per cent of total	100	59	41	95		3		2	-----	9	3	3	5	8	10	12	15	35

"Health is the essential factor in productiveness, prosperity, and happiness, and hence in the advancement of civilization."—Sir Frederick Treves.



Sanitary Engineering

Ralph Hilscher, C.E., Director.
Bureau of Sanitary Engineering.

It is interesting to observe the recent increase in demand for information regarding disposal of sewage from isolated houses. Presumably this is brought about through increased building activity. Every mail brings a letter, or often several letters, with request for plans or figures or advice to assist in construction of a septic tank—always a septic tank.

Rarely do the writers of these letters supply the slightest information regarding local conditions; consequently, we are unable to know whether it is a tank or some other sewage treatment or disposal device that is needed. We reply in very general terms, enclose a pamphlet that briefly discusses this subject, and invite further correspondence if additional assistance is needed.

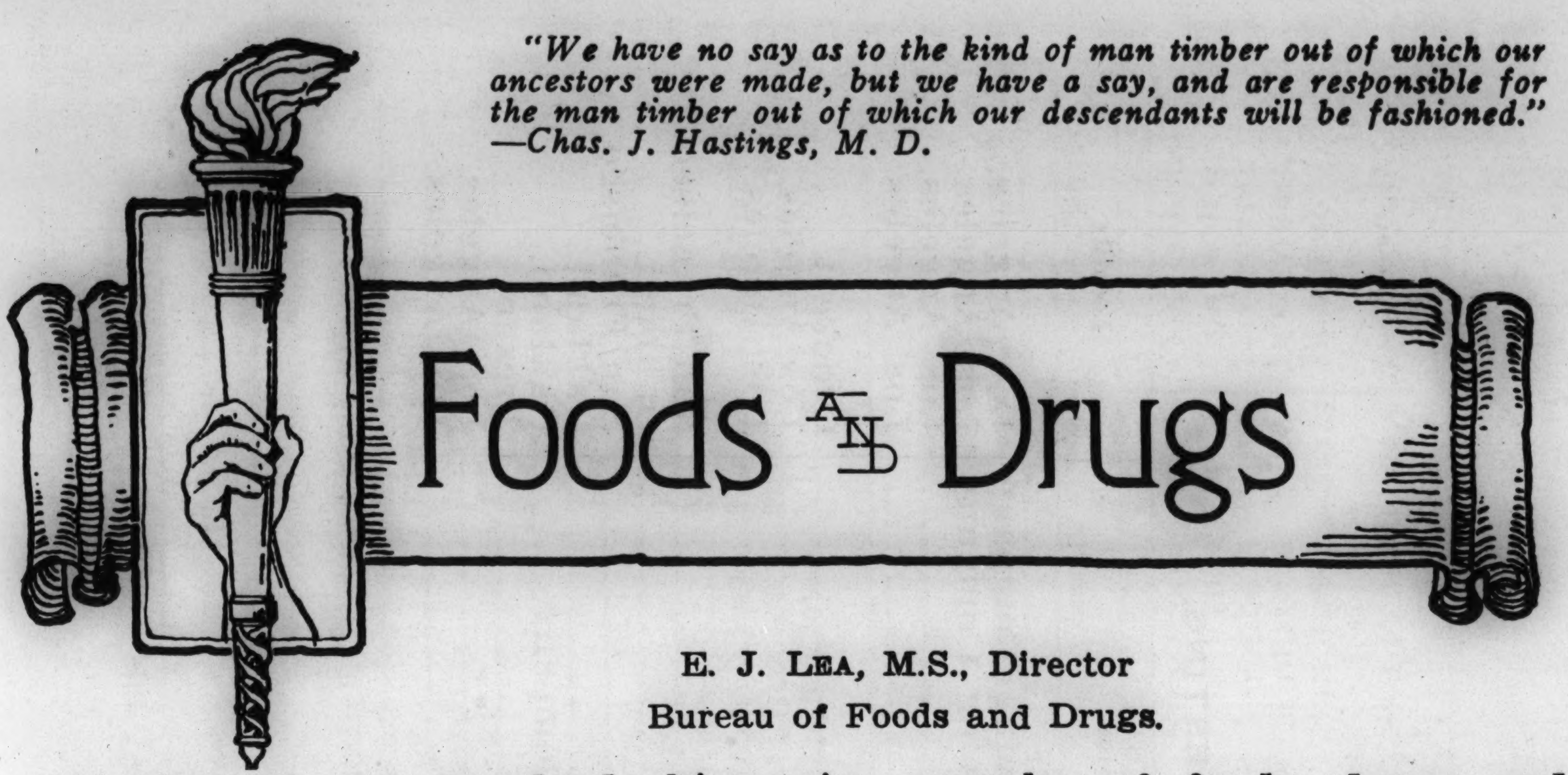
A septic tank is not a disposal device nor is it a high grade purification device, as many seem to suppose. It is a box that the sewage flows through and in which the velocity of flow is retarded in order that some clarification may take place, partially by sedimentation and partially by flotation. Having passed through this box, the sewage is still sewage, minus that portion of the larger solids left behind, and this outflowing liquid still needs to be disposed of. The usefulness of such a tank lies not in disposing of the sewage but in making its disposal easier.

Disposal of septic tank effluent into streams is not permitted in California. When the quantity is small, as in the case of a family residence, disposal may often be most easily accomplished by discharging into a system of underground seepage tile; sometimes by discharging into a covered pit or cesspool. Very often a cesspool alone, receiving the raw sewage, is satisfactory. Disposal in deep wells penetrating gravel may be the cause of drinking water contamination and is to be adopted only with special permission.

* * *

An ordinance regulating sanitation of highways, public grounds and water courses has been drafted and a copy sent to the supervisors of each county with the recommendation that it be adopted. Santa Clara and Orange counties have had such ordinances in effect for some time past,—possibly a few others also. The highways and recreation areas are among California's greatest assets and it is to the interest of all that they be kept clean.

> *"We have no say as to the kind of man timber out of which our ancestors were made, but we have a say, and are responsible for the man timber out of which our descendants will be fashioned."*
> *—Chas. J. Hastings, M. D.*



Foods and Drugs

E. J. Lea, M.S., Director
Bureau of Foods and Drugs.

A total of two hundred thirty-nine samples of foods, drugs and miscellaneous materials were received at the laboratory during the month of January.

Official Samples.

Foods.

Beverages	26
Bread	2
Coffee	1
Condiments	12
Confectionery	3
Cream	1
Eggs	1
Eggs, frozen	8
Egg substitute	3
Feeds	13
Fruits, dried	24
Honey	1
Ice cream	2
Jams and jellies	8
Meat	1
Milk	4
Milk, evaporated	5
Mushrooms	2
Noodles	3
Oil, sweet	1
Peas	1
Sugar, maple	1
Syrup	2
Vinegar	3
Total	128

Miscellaneous.

Flea chaser	1

Drugs.

Camphorated oil	5
Citrate of magnesia	8
Ginger, Tr. of	1
Goose grease	1
Hog cholera specific	1
Iodine, Tr.	1
Regulator, animal	1
Total	18

State Institution Samples.

Bluing	1
Cereals	5
Coffee	2
Cheese	1
Cornmeal	1
Baking powder	1
Barley	1
Feeds	3
Flour	2
Farina	1
Fruit, dried—	
Apples	3
Figs	1
Peaches	2
Pears	1
Prunes	1
Mustard	2
Oil, linseed	1
Oysters	1
Milk	1
Pepper	1
Oleomargarine	2
Oil, olive	2
Rice	1
Soap	3
Salt	1
Tapioca	2
Tankage	1
Tea	1
Vegetables	4
Vinegar	1
Oats, rolled	1
Paste	2
Total	53

Unofficial Samples.

Acid, citric	1
Beverages	6
Condiments	8
Egg whites	1
Fruits, canned	1
Fruits, dried	3
Fruits	1
Honey	1
Jelly	1
Meat scrap	11
Milk, pasteurized	1
Pepper	1
Spinach	1
Sweetener, artificial	1
Whiskey	1
Total	39
Total official	129
Total unofficial	39
Total state institution	53
Total drugs	18
Total	239

CASES REFERRED TO DISTRICT ATTORNEYS AT THE JANUARY MEETING.

Name of article	Offense	Accused dealer	Locality
Apple butter	Adulterated and mislabeled	Los Angeles Preserving Company	Los Angeles.
Apple and fig jam	Adulterated and mislabeled	Los Angeles Preserving Company	Los Angeles.
Camphorated oil	Adulterated	Estrella Pharmacy	Los Angeles.
Cauliflower	Adulterated and mislabeled	J. C. Berryhill	Los Angeles.
Chopped meat	Adulterated and mislabeled (contains sulphur dioxide)	Dan Denny	Crockett.
Citrate of magnesia	Adulterated	S. T. Snuggs	Los Angeles.
Citrate of magnesia	Adulterated	Estrella Pharmacy	Los Angeles.
Eggs, fresh, mixed colors	Adulterated and mislabeled (stale eggs substituted)	Golden Gate Grocery	San Francisco.
Eggs, fresh, mixed colors	Adulterated and mislabeled	Kessler's Grocery	Oakland.
Eggs, fresh, mixed colors	Adulterated and mislabeled	Suey Lee Company	San Francisco.
Eggs, fresh, mixed colors	Adulterated and mislabeled	Swift & Company	Oakland.
Eggs, fresh, mixed colors	Adulterated and mislabeled	Ekonomie Grocery Company	Oakland.
Figs, dried	Adulterated and mislabeled	Theo. Markarian	Fresno.
Maple fudge	Adulterated and mislabeled	Geo. Racounas	Los Angeles.
Walnut maple fudge	Adulterated and mislabeled	H. Scolinas	Los Angeles.

CONVICTIONS UNDER FOODS AND DRUGS ACT, REPORTED DURING JANUARY, 1920.

Name of article	Offense	Accused dealer	Locality	Result
Apple cider	Adulterated and mislabeled (filthy and decomposed)	A. S. Bufton	Alameda	Fined $25.
Bacon, sliced	Adulterated and mislabeled	Swift & Company	Oakland	Fined $50.
Catsup	Adulterated and mislabeled	Leon's Lunch Room	Fresno	Fined $10.
Chilled eggs	Adulterated and mislabeled	F. Rovai	Oakland	Fined $5.
Chopped meat	Adulterated and mislabeled	Liberty Market	Manteca	Fined $15.
Citrate magnesia	Adulterated and mislabeled (does not conform to standard)	J. W. Husband	Modesto	Fined $25.
Coffee	Adulterated and mislabeled	C. F. Green	Vallejo	3 mos. probation.
Eggs	Adulterated and mislabeled	Swift & Company	Oakland	Fined $100.
Syrups	Adulterated and mislabeled	The Parisian Candy Store	San Jose	Fined $25.
Tomato paste	Adulterated and mislabeled	Concentrated Tomato Paste, Inc.	Mountain View	Material destroyed.
Tomato paste	Adulterated and mislabeled	Concentrated Tomato Paste, Inc.	Mountain View	Material destroyed.
Tomato paste	Adulterated and mislabeled	Concentrated Tomato Paste, Inc.	Mountain View	Material destroyed.

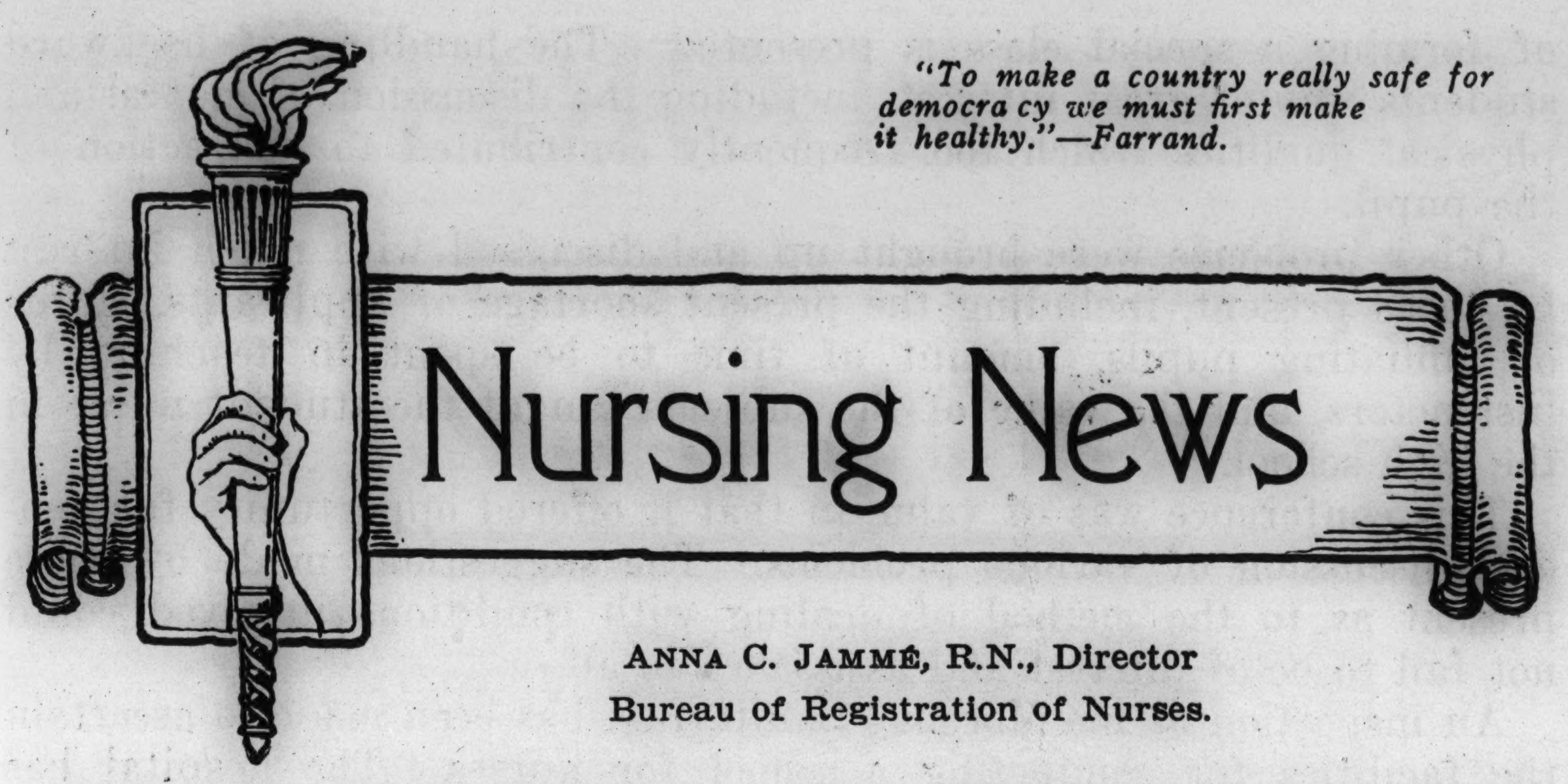
ARTICLES OF FOOD CONDEMNED UPON PHYSICAL AND CHEMICAL EXAMINATION AS UNFIT FOR FOOD, JANUARY, 1920.

Material	Amount	Condition	Locality	Disposition
Almonds, shelled	100 pounds	Unfit for human consumption	San Francisco	Coal-oiled.
Raisins	50 pounds	Mouldy	San Francisco	Coal-oiled.
Tomato paste	400 pounds	Adulterated and unfit for human consumption	Mountain View	Destroyed.
Tomato paste	5,912 1-lb. tins	Adulterated and unfit for human consumption	Mountain View	Destroyed.
Tomato puree	414 1 gallon cans 1,090 2½-lb. cans	Unfit for human consumption	San Jose	Dumped.
Walnuts, Manchurian	16 50-lb. boxes	Mouldy	San Francisco	Destroyed.

MATERIALS IN COLD STORAGE JANUARY, 1920.

Apple butter	300	lbs.
Barley	102	lbs.
Beer	135	bbls.
Beverages	2	(¼) bbls.
Buckwheat	7½	bales
Bulbs	8,904	lbs.
Butter	605,149	lbs.
Cereals	47,441	lbs.
Cheese	3,089,727	lbs.
Cider	1,909	bbls.
Compound	2,372	lbs.
Condiments:		
Horseradish	53,990	lbs.
Peppers	122,685	lbs.
Pickles	33	lbs.
Cooking fats	84,332	lbs.
Eggs:		
Canned	10,986	lbs.
Fresh	1,221,920	doz.
Frozen	107,627	lbs.
Meats	618,703	lbs.
Fish:		
Cured	487,850	lbs.
Fresh	886,890	lbs.
Pickles	257,470	lbs.
Shellfish	80,830	lbs.
Fruit:		
Canned	850	lbs.
Dried	190,796	lbs.
Fresh:		
Apples	65,715,501	lbs.
Apricots	1,125	lbs.
Berries	149,422	lbs.
Grapes	43,488	lbs.
Grape fruit	200	lbs.
Guaves	20	lbs.
Miscellaneous	12,192,232	lbs.
Oranges	942	bxs.
Peaches	40	lbs.
Pears	193,110	lbs.
Persimmons	9,235	lbs.
Pomegranates	14,290	lbs.
Quinces	390	lbs.
Fruit pulp and juices	443,323	lbs.
Honey	14	lbs.
Kremal	38	bbls.
Lard	67,118	lbs.
Meats:		
Fresh	1,197,207	lbs.
Frozen	1,145,463	lbs.
Rabbits	60	lbs.
Sausage	2,058	lbs.
Milk:		
Condensed	24,307	lbs.
Canned	50,762	lbs.
Mincemeat	3,475	lbs.
Molasses	8	bbls.
Nucoa	1,386	lbs.
Nuts	53,874	lbs.
Nut meats	79,082	lbs.
Oleo	31,629	lbs.
Olive oil	73,250	lbs.
Olives	660	lbs.
Plants	8,745	lbs.
Plant leaves	1,373	lbs.
Poi	353	lbs.
Popcorn	14,645	lbs.
Poultry	1,600,989	lbs.
Rabbits	60	lbs.
Rice	3,273	lbs.
Rugs	697	lbs.
Sauerkraut	19,670	lbs.
Strawberry crush	601	lbs.
Syrup	946	bbls.
Tomato pulp	24	lbs.
Troco	5,700	lbs.
Vegetables:		
Bean, dried	7,400	lbs.
Beets	2,300	lbs.
Bell peppers	4,383	lbs.
Celery	148,715	lbs.
Celery	1,369	lbs.
Chili	61,204	lbs.
Corn	1,190	lbs.
Garlic	33,308	lbs.
Miscellaneous	32,764	lbs.
Parsley	40	lbs.
Peppers, dried	20,850	lbs.
Potatoes	8,084,658	lbs.
Sugar beets	162	lbs.

"To make a country really safe for democracy we must first make it healthy."—Farrand.



Nursing News

Anna C. Jammé, R.N., Director
Bureau of Registration of Nurses.

During the month of January, visits and inspections were made by the Assistant Inspector of Schools of Nursing at the following hospitals: Orange County, Glendale Sanitarium, Boyle Heights Dispensary, Los Angeles, Pasadena Hospital, Fullerton Hospital, Los Angeles County, San Antonio, Agnew Sanitarium, California Hospital. A talk was given to the pupil nurses at the Sisters' Hospital, Los Angeles. Visits were made with the director at Orange County, Fullerton, St. Catherine's, Santa Monica, Santa Ana and the Children's Hospital, Los Angeles.

Following a meeting of the advisory board of physicians of Agnew Sanitarium, San Diego, it was decided to discontinue the school for nurses in connection with this institution owing to a lack of facilities for providing desirable conditions for an accredited school.

The pupils of Agnew Sanitarium who are transferring to other schools will do so with full credit for time spent at Agnew Sanitarium.

The conception of a nurses' school as an educational institution is assuming clearer proportions in the viewpoint of those in charge with the result that unless conditions of educational value can be created the school will be abandoned.

During the visit of the director of the bureau to Los Angeles recently, a meeting of instructors was held at Los Angeles County Hospital on Friday, January twenty-third, for the purpose of open discussion of various problems in connection with their teaching. The following hospitals were represented: Sisters', Children's, Pacific, California, Angelus, Clara Barton, Good Samaritan, Methodist, Los Angeles County, San Bernardino County, San Antonio, Pomona Valley, Seaside, Long Beach, Pasadena, Riverside City, and Glendale Sanitarium.

There was open discussion on the adjustment of various types of students in each particular school. The adjustment of pupils who transfer from one school to another seems to be a difficult matter as in many cases pupils have had an amount of practice work but little theory, with the result that considerable class work must be carried in order to complete their theory in the time allowed. While the time allowed in transferring is granted on the basis of the theory covered, it has been found necessary in some cases to repeat the subject owing to the limited knowledge the pupil possesses on this material. Again if the pupil is in advance of or behind the other classes, the problem of forming a special class is presented. The handling of backward students was of great interest, including the discussion of mental and physical qualities which too frequently contributed to distraction of the pupil.

Other problems were brought up and discussed with much interest by those present, including the present shortage of applicants, status of affiliating pupils, amount of time to be spent in teaching by instructors, and the value of the subjects taught the student nurse in the high school.

This conference was of value in that it offered opportunity for general discussion of various problems. The suggestions made by those present as to the method of dealing with conditions involved could not fail to be of interest and assistance to all.

An inspection of the Morengo Sanitarium has been made to ascertain the facilities for conducting a school for nurses. The hospital has been training young women for some time yet the school has not been accredited, although the young women have been in the hospital for three years. The facilities are totally inadequate for carrying on instruction of students due to the condition of the hospital and graduates of this hospital are not eligible of examination to registration in this state.

At the regular meeting of the board held on February 7, the following graduate nurses were granted certificates as registered nurses. These nurses had already been registered under the laws of another state and were therefore able to obtain their registration without examination.

	No.
Boweley, Stella, Maryland	7566
Clark, Vera M., Illinois	7514
Christensen, Lillian, Illinois	7475
Jacobs, Clara M., Illinois	7481
Kilgore, Ella, Colorado	7477
McVeety, May E., Minnesota	7563
Miller, Mary Belle, Minnesota	7469
Meyers, Lucy Pearl, Indiana	7493
Pott, Agnes Minnie, Indiana	7494
Robinson, Beatrice, Texas	7476
Smith, Anna Cole, Illinois	7478
Swan, Lora L., Nebraska	7483
Wellensiek, Alvina M., Nebraska	7474
Warner, Gertrude E., Illinois	7479
Wright, Catherine M., Maryland	7567